

# COMPUTERWORLD

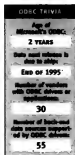
## Microsoft sails ODBC through other ports

By Kim S. Nash

To help broaden the corporate appeal of its Open Database Connectivity interface, Microsoft Corp. last week exclusively licensed its code to Visigenic Software, Inc., a 1-year-old development tool maker in San Mateo, Calif.

The deal calls for Visigenic to port ODBC — which currently runs only on Windows — to Unix next month. The move will be followed by ports to the Macintosh in the second quarter of next year and possibly to OS/2 after that.

The goal of the pact is to capture the attention of high-end corpo-



rate users, especially Unix shops, who have shunned ODBC for native database connections — said to be faster and more functional.

**Users balk**  
Since it unveiled Release 1.0 in 1992, Microsoft has touted ODBC as the definitive way to get efficient systems to talk to back-end database servers. ODBC is a set of specifications

intended to let PC applications talk to different vendors' databases at a basic level.

Yet despite all this, some large corporate users have already

ODBC, page 12

## Sun model breaks mold

Internal pilot lets networked systems easily share objects

By Ellis Booker and Jean S. Bozman

Sun Microsystems, Inc. last week gave the first public glimpse of a networked object technology that could simplify the creation of enterprise-wide distributed systems.

The internally developed system — one year in the making and now being piloted by Sun's manufacturing organization — makes practical use of an object-oriented, network-based data model.

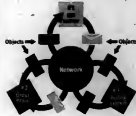
Called "publish and subscribe," the technology enables systems and applications to communicate with one another regardless of software or hardware differences and without an awareness of one another (see chart at right).

A key feature is the one-to-many nature of this environment, under which many computing resources can subscribe to published objects on the network simultaneously.

"It's the solution to a hell of a lot of problems, including how do I get dissimilar systems — hardware, software and applications — to communicate with each other without having to go in and modify the internals of the hardware and software," said Jim Stikeleather, a partner at Technical Resource Connection in Tampa, Fla. The client/server and object technology con-

Sun, page 145

In this example, incoming messages to an EDI server (#1) trigger an object containing a customer's name, which is captured by the order entry system (#2). The ordering system then publishes an invoice object that is picked up by the billing system (#3).



## PowerPC deal nears

By Michael Fitzgerald, Mark Halper and Ed Scannell

The devil is still in the details, but sources close to IBM and Apple Computer, Inc. last week said the two companies have concluded talks on creating a unified PowerPC hardware platform and other cross-licensing agreements. They are trying to hit a targeted announcement date during the week of Nov. 7.

Users and developers are keenly interested in the long-awaited uniting of the two companies behind the PowerPC platform. Also of heavy interest is Apple's separate licensing of its operating system to IBM. Observers said these steps are necessary to fend off the increasingly powerful

PowerPC, page 145

Union Pacific is improving railcar use

## Busy railroads pressure IS

By Julia Kling

A sharper-than-expected upturn in the economy, coupled with a steady climb in business regained from truckers, has railroads chugging furiously to meet demand.

But rather than roll out costly new equipment, the largest railroads are leaning heavily on information systems to help ease spot shortages of certain railcars.

Already enhancing individual railcar management systems to improve turnaround time are CSX Transportation, Inc. in Jacksonville, Fla., Consolidated Railway, Inc. (Conrail) in Philadelphia and Union Pacific Railroad in Omaha.

The system improvements will also identify potential delay points in the current capacity crunch, which is being caused by an overall increase in shipping volume. The alternative is buying additional cars at a minimum cost of \$40,000 each, which analysts said is a risky proposition.

Busy railroads, page 34

## Baby Bell pact pitches alternative cellular net

By Michael Fitzgerald

In a bid to establish a nationwide alternative to AT&T Corp.'s McGraw cellular network, four major wireless players last week formed an even larger wireless network that could eventually cut the cost of cellular service.

In addition, the new strategic partnership between two pre-existing alliances of cellular entities — Bell Atlantic Mobile Services/Novus Corp. and AirTouch Com-

munications, Inc./US West, Inc. — should improve interoperability and reduce the bite of roaming fees incurred by users who travel outside their cellular region.

Users contacted said the promise of lower costs was particularly attractive.

"All the costs associated with cellular are too high to really push the usage much, especially for data," said Tom Mado, vice president of telecom-

Baby Bell, page 145

### ON-LINE SHOPPING

Companies eager to do business on the Internet must cope with pickpockets, fuzzy laws, poor demand and upstart vendors. See Management, page 72.

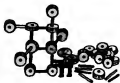
### E-MAIL VOICES

Back in the office, E-mail systems from Banyan, Lotus, Microsoft and Novell are failing to provide sufficient interoperability. See the CW Guide, page 87.

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## Starting from SCRATCH

See In Depth, page 113.



Finding yourself surrounded by departmental systems of old, when your competitors are reaping the rewards of customer-driven systems, puts you at a disadvantage. One CIO says the only way to compete is to get rid of offending systems and rebuild.

### NEWS

- Cisco announces another partnership with a hub vendor, UB Networks. *Page 4*
- Borland and Sybase sign a deal intended to fill holes in their respective product lines and combat Microsoft and Oracle. *Page 6*
- AT&T begins pilot tests of its Network Notes groupware service and plans to announce a handful of partners at Comdex/Fall '94. *Page 8*
- Computer Associates throws its hat into the client/server accounting ring. *Page 10*
- Storage Technology ships a new tape drive that transfers data twice as fast as current E440-class devices. *Page 12*
- IBM PC Co. rolls out a batch of products covering a range of notebook computers, PCs and servers. *Page 16*

### DESKTOP COMPUTING

- WordPerfect rolls out two releases of its WordPerfect package for Windows. *Page 39*
- Ed Doebbeck takes Warp out for a test drive and finds it cleans up some old OS/2 problems. *Page 39*

### WORKGROUP COMPUTING

- A year after X/Open released its plan for a common Unix specification, the test suites that will allow vendors to comply with the standard are nearly complete. *Page 49*

### ENTERPRISE NETWORKING

- Novell says it will make wide-area networking a little easier for NetWare 3.x and 4.x users by supporting NetWare Link Services Protocol. *Page 63*

### LARGE SYSTEMS

- Multidimensional databases are gaining ground in the end-user query game. *Page 69*

### APPLICATION DEVELOPMENT

- Sybase's pact to bundle the Sybase SQL Server database with Novell operating systems should be more than a me-too announcement following a similar deal between Oracle and Novell. *Page 73*

### MANAGEMENT

- Resources abound for managers seeking to improve their skills at managing organizational and technological change. *Page 93*

### CW GUIDE

- Users are demanding more mature and easier-to-manage E-mail products that can easily converse with myriad competing and legacy mail systems. *Page 97*
- A Buyers' Scorecard survey shows that today's mail products score low grades because they are in transition. *Page 102*

### CAREERS

- What's a chief resource officer? It could be your next job if your company outsources any IS arena. *Page 122*

### MARKETPLACE

- Buyer's diary: A company searches for a client/server E-mail system that mirrors the functionality of its mainframe-based system. *Page 133*

### COMMENTARY

- Paul Gillin warns that Intel is pushing the Pentium over the 486 for its own benefit rather than to help buyers. *Page 36*
- Michael Schrage says the lessons learned in the U.S. auto industry stem in part from missteps of information. *Page 37*
- N. Dean Meyer encourages managers to use benchmarks based on human resources, not money, when considering downsizing. *Page 37*
- It is now 1994, and MS-DOS is outdated, Ben Rothke says. *Page 42*
- "Prudential Securities' Jeff Furman and Albert Marotta suggest ways to take the pain out of coping with year 2000 issues. *Page 70*

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- Oct. 21 Stock Ticker ..... *Page 143*
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### Executive Briefing

Even good news can spawn headaches. U.S. railroads have smiled in the glow of economic growth and their ability to reclaim some business from trucking firms. The challenge that has come with this success is the possibility that railroads need to invest and increase their freight car fleet. However, rail carriers seem to have found less-expensive ways to cope with their success by relying heavily on new information systems that make better use of the rolling stock they already own. *Page 1*

The Waldenbooks retail chain is banking that customer service benefits will outweigh the dangers of experimenting with an untried system during the busiest selling season of the year. The company is preparing to roll out point-of-sale systems to 450 stores little more than a month before the official kickoff of the holiday shopping season. *Page 8*

There are pluses and there are pitfalls to bringing commerce to the Internet. Questions about advertising, copyrights, regulation, ease of use and pricing complicate efforts to promote buying, selling and financial transactions on the Internet. *Page 79*

Telegraphing its product plans, Sun Microsystems revealed a prototype system — now being tested by its internal manufacturing operation — that lets diverse systems and applications communicate via a "publish and subscribe" distributed data model. The system could dramatically simplify the creation of enterprise-wide distributed systems. *Page 1*

IBM and other computer vendors enjoyed better-than-expected financial results in the third quarter thanks to a resurgence in European hardware spending. Even Digital, suffering a \$134 million quarterly loss, saw a silver lining. In the PC software sector, results were more mixed. *Pages 14 and 32*

On site this week: American Re-Insurance's claims processing professionals won't be chasing paper anymore thanks to an OS/2-based claims processing system the insurer recently installed nationwide. *Page 51*

Severage distributor Domeq Imports has built a custom system for tracking internal and competitors' sales and marketing data. *Page 49*

A Dayton, Ohio, hospital is using a wireless LAN system to increase nurses' efficiency. *Page 66*

The National Center for Atmospheric Research is using the Open Software Foundation's Distributed Computing Environment as a way for scientists to find and use data. *Page 70*

### The 5th Wave by Rich Tennant

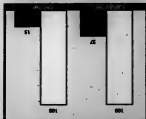


# The UNIX System Sort



UNIX

## PERFORMANCE



UNIX System Sort SyncSort

## FUNCTIONS

UNIX	SyncSort
Fixed length binary	NO
Variable length binary	NO
ASCII text	YES
1. Selection	NO
2. Subsetting	NO
3. Renumbering	NO
4. Renaming	NO
5. Renumbering	NO
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100. Renumbering	NO

UNIX has its advantages, but its System Sort isn't one of them. All it can do is sort ASCII text - slowly!

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# Cisco, UB pair up in hub/router battle

By Stephen P. Klett Jr.

**■ In an attempt to counter the momentum of Bay Networks, Inc., Cisco Systems, Inc. last week announced a broad-reaching distribution and technology-sharing partnership with hub vendor and network integrator UB Networks, Inc.**

The move coincided with formal shareholder approval of the merger of rivals SynOptics Communications, Inc. and Wellfleet Communications, Inc., which are now called Bay Networks (see related story at right).

Cisco and UB will flesh out their offerings by jointly developing Asynchronous Transfer Mode (ATM), virtual LAN and switching technologies. Specifically, they will integrate UB's object-oriented virtual network messaging software with Cisco's Internetworking Operating Systems (IOS) software to simplify routing in multivendor ATM environments. Also, UB will sell, service and support Cisco's product line.

The partnership fills a shared-access hub gap in Cisco's distributed routing architecture — called CiscoFusion — via UB's AccessOne hub family and will augment Cisco's switching line via UB's GoodSwitch line, analysts said. Cisco will also benefit from increased distribution via UB's network integration service, analysts said. UB gets a foot into Cisco's installed base and access to its routing technology.

"This is the first real technology exchange that Cisco's done since the Hub System [with SynOptics], which failed for business reasons, not technical reasons," said Melinda Leberon, an analyst at Gartner Group, Inc. in Santa Clara, Calif. The Cisco/UB plan "should result in improved good for both companies as well as customers," she said.

## Smoothen path

Cisco users will benefit from improved interoperability with UB products, and the software integration should result in a less painful migration from legacy LANs to ATM.

We like this partnership on paper because it should produce products that make it easier to manage tomorrow's higher-speed networks. But talk is cheap, and we'll believe

## Stepping up

Cisco has a number of partnerships with other hub vendors, including Cabletron Systems, Inc., Chelcon Corp., Optical Data Systems and Hewlett-Packard Co. In addition, while UB sells and supports Wellfleet routers and will continue to do so, Cisco is now its strategic router vendor, UB officials said.

whom are holding off from making significant changes to their networks until some of the smoke clears.

"There's a world of confusion out there. Users are being put in the awkward position of having to choose which is more strategic, my hub or my router, and they are not happy about it," Leberon said.

"Partnerships are a good thing in terms of keeping competition going, but it's getting really confusing keeping them all straight," said Joe Castle, a message engineer at Commonwealth Edison Co. in Chicago, which uses Cisco and Cabletron Systems, Inc. equipment.

"We see Bay Networks as a positive move because we believe that [hub and router] technologies have to come closer together," said Dave Lockhart, director of systems integration at Toys R Us, Inc. in Rochelle Park, N.J. "Our hope is that the standards they develop will open up and published and that they don't force us to choose between vendors. If they do they will alienate us."

it when we see it," said a network administrator at a large airline who asked not to be named.

First out the door will be a Cisco 4500 router module for UB's AccessOne hub, which is due to ship in six to nine months. Other router modules will follow, and Cisco's IOS software will be integrated into products such as UB's GeoSwitch ATM switching hub.

## Users left in the dust

Most observers agreed the spate of mergers and partnerships occurring in the networking industry will produce the benefits of improved interoperability and network management in the long run.

In the mean time, they are creating confusion among users, many of whom are holding off from making significant changes to their networks until some of the smoke clears.

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## Bets are on Bay

If it official, SynOptics and Wellfleet shareholders voted to approve the merger of their respective companies, which will now be known as Bay Networks and will be traded under the symbol BNET on the NASDAQ exchange.

Stockholders representing 73% of SynOptics' roughly 60 million outstanding shares voted, and 80% approved the merger. The previously high-flying Bay Networks this week will detail future product direction and architecture, said Gary Bowen, executive vice president of marketing and field operations.

Some reports say it will take 15 months to deliver products, but Bowen said many products will be delivered in the first half of 1995, including ATM switches, ATM interfaces for virtual network routers and a complete management package.

"People are going to want to build networks in '95 to '96 based on a combination of hub, switching and routing technology, and we'll be able to deliver that — including the software to manage it," Bowen said. — Stephen P. Klett Jr.



# Internet services rise as MecklerWeb slides

By Ellis Bookier

From a basement office in Cambridge, Mass., start-up Open Market, Inc. hopes to help big companies and garage entrepreneurs alike sell their wares on the Internet.

The company today will announce an on-line, forms-based service to let individuals and small companies build World-Wide Web pages for as little as \$300 plus a \$50 monthly fee.

The significance of Open Market's offering is its ability to handle all the growing administrative details of setting up a Web home page such as determining security arrangements and payment systems. All the merchant needs is a Mosaic-compliant browser to create a virtual store.

The service also includes handy features for shoppers, such as searching tools and a virtual shopping cart for collecting information about products from multiple sellers and comparing them before making a purchase.

Open Market, which is headquartered on the Internet at info@openmar-

ket.com, already counts the likes of Mead Data Central, Inc., Time Warner Inc. and Harcourt Brace Jovanovich, Inc. as customers.

Software vendor Ipwitich, Inc. in Wakefield, Mass., will be one of the first virtual storefronts on Open Market.

"There's an extra benefit to selling software this way. Customers can immediately download it," said Ipwitich President Roger C. Green, who will offer the firm's EMail electronic-mail package across Open Market today.

## Revolution

Green said network commerce will usher a fundamental change in the way software is distributed because much of the cost today to companies like his involves distributing information, taking orders, shipping, billing and collecting payment. Customers logging on to Ipwitich's home page will see a description of the company, screen shots of each product with detailed product descriptions, license agreements and a price list.

By some estimates, 1,000 com-

mercial sites currently reside on the Internet. This number is expected to grow to 5,000 by the end of next year.

Meanwhile, one of the most publicized efforts to commercialize the Internet, MecklerMedia Corp.'s MecklerWeb, suddenly changed its approach after just two weeks of operation.

Launched Oct. 5 amid much fanfare after 10 months of development, MecklerWeb was supposed to be a global Yellow Pages, an on-line home for the nation's top industrial, marketing and computer companies.

But in an abrupt about-face last week, MecklerMedia Chairman and Chief Executive Officer Alan Meckler switched the underlying mandate of the service and recast it as a place for on-line versions of the firm's magazines and for advertising.

But the MecklerWeb blowup is not a bellwether. Industry observers said. "There are dozens of healthy, viable, internet-based business uses," said Daniel Dera, author of *The Internet Guide For New Users*.

MecklerWeb's concept of stacking one location that would "pull" net surfers in to shop has not panned out yet, he said. "We are still exploring how to help people find you [on the Internet] when they don't know what you have is what they're looking for," Dera said.

## Corrections

An Oct. 17 news story about the Object Management Group should have said Hewlett-Packard Co. supported a Common Object Request Broker Architecture 2.0 interoperable objects standard based on the Open Software Foundation's Distributed Computing Environment. Due to an editing error it said Compaq Computer Corp. had backed the proposal.

Users attending the Interex '94 conference for HP computers were told that HP/UX Release 10.0 will ship sometime in the first calendar quarter of next year. A Sept. 28 story on HP/UX mistakenly reported an incorrect shipment date of late 1995.

A photo in last week's In Depth about Microsoft Corp.'s Windows NT was misidentified as that of David N. Gutter, director of Windows NT business operations. The photo is of James Allen, vice president of the business systems division.

Several company locations were mistaken in recent issues, due to reporting and editing errors. Gateway Consulting is in New York; BMC Software, Inc. is in Houston; and the headquarters of Union Camp Corp. is in Wayne, N.J.



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## Navigating shoals of PC support

**A**CIO was fired at a Northern insurance company recently, and an end user was given the position, according to a report circulated at the Gartner Group 1994 Symposium in Lake Buena Vista, Fla., early this month.

It seems all too likely. Militant end users, angered by years of frustration and misunderstanding between themselves and the information services staff, believe their action on PC LANs paves the way to the future and that they should be given the chance to reveal IS.

If it hasn't come to a showdown in your organization, there's no guarantee it won't. At the symposium, the impact of PCs on IS departments continued to be described in terms of upheaval and chaos. More and more money pours into desktop-oriented projects, while centralized IS budgets languish. Bill Kirwin, vice president of information technology management at Gartner, estimates 14% of desktop projects occur outside IS, while IS budgets are limited to 2% annual increases—or less than the rate of inflation.

The combination creates perilous shoals for the IS staff. As managers of the computing resources, they are expected to implement client/server at a time when the proliferation of PCs increasingly strains their resources. The cost of maintaining a PC user is not the small amount initially spent on hardware and software but \$8,200 per year, according to Gartner. And while the migration from DOS to Windows has reduced some costs, it has doubled the average number of applications per user, which increases the cost of technical support.

With budgets frozen, few newcomers are showing up in IS ranks with fresh enthusiasm and insights to help cope with the expanding legions of end users. Client/server projects already under way are in danger of falling behind schedule. Nevertheless, IS can't afford to stumble.

Impatience over the application backlog was one thing, but contemporary impatience leads end users to take matters into their own hands. They cobble together systems that serve a corporate need, but because those systems have no design principles and follow no agreed-upon architecture they become an inherited headache for IS.

The tasks are daunting, but IS' failure to respond will raise new questions about investment in IS. Kirwin and Carter Lasner, director of Gartner's information technology management research, say the high cost of PCs can be cut by 40% to 50%. They offered the following recommendations on the role IS should play:

- Document the cost of supporting PC end users. End-user demands on IS budgets frequently go unrecognized. In some cases, those demands are presumed to be met outside the budget, in the ranks of users. If you can, document the inefficiency and cost of work lost from workers consulting one another.

- IS must recognize around functions and get away from a platform orientation such as separate groups dedicated to the MVS mainframe, midrange and desktop. A true operating system group should be familiar with those systems from the desktop to the mainframe and be able to address how they work together.

- Take a hard look at the PC services you provide and decide which ones are most vital to continue, cutting your losses elsewhere. Supply centralized backup, recovery and security services as much as possible. Look for management software assists such as server-based PC configuration and application management packages.

- Substitute CD-ROM-based training for expensive, classroom training, simplifying and cover the basics. Make it just-in-time training that takes place when end users are most interested—when a new system is set up or when they are learning a new application. Make sure training occurs; you'll save the expense of dozens of piecemeal calls from untrained users seeking technical support.



Charles Babcock

The combination of greater spending on PCs and IS budget constraints creates perilous shoals for the IS staff.

## Database pact may stave off Borland, Sybase rivals

Integration potential elicits mixed reactions from users

By Kim S. Nash and William Brandel

**■ Borland International, Inc. and Sybase, Inc. pledged allegiance to each other last week in a multiyear engineering and marketing deal. The pact is intended to fill holes in their respective product lines and deflect attacks from rivals Microsoft Corp. and Oracle Corp.**

The firms promised to integrate Borland's Paradox, dBase, ReportSmith and imminent Delphi95 PC development tools with Sybase's SQL Server database by mid-1995.

In the process, Sybase users will get needed client/server development tools while they wait for Sybase's Momentum products, already one year overdue. Borland hopes to improve its standing in the enterprise after scoring off potential business recently with layoffs and big quarterly losses [CW, June 6].

"Borland hasn't been taken seriously in client/server so far, so maybe this will help," said Randall Thomas, a technical analyst at a global bank in New York.

Yet some observers yawned at the announcement. "They're just saying their tools will work together, and they should," said Mike Wallace, an analyst at UBS Securities, a New York brokerage firm.

### Courting the disenchanted

Borland's financial troubles have deterred new buyers, observers noted, although Paradox and dBase users greatly outnumber users of PC database rivals such as Microsoft's Access and FoxPro. Borland sold nearly 2 million copies of its DOS and Windows databases last year, compared with Microsoft's 1.4 million, according to Datasquest, Inc. in San Jose, Calif.

Already, at least 25% of Borland's Paradox users also run Sybase, estimated Regan Coleman, a senior consultant at Context Integration, Inc., a consulting firm in Emeryville, Calif.

Tighter integration with Sybase "will make a lot of those people happy," Coleman said.

Sybase users will be able to access single-user databases.

Paradox and dBase. Sybase has been unable to offer such low-end products since parting ways with Microsoft in April [CW, April 4], noted Alan Zemel, president of Zemel Systems, a consulting firm in Oradell, N.J.

However, the deal somewhat displaces Borland's Interbase, users and analysts said. Interbase had been Borland's answer for so-

Database manuals	
<p><b>What Borland users get:</b></p> <ul style="list-style-type: none"> <li>• Clear updating path for PC applications to high-end Sybase database</li> <li>• Access to OS/2, NetWare, Unix and Windows NT operating systems</li> </ul>	<p><b>What Sybase users get:</b></p> <ul style="list-style-type: none"> <li>• PC development tools missing from Sybase's own lineup</li> <li>• Desktop database that work with Sybase SQL Server</li> </ul>

called updating users who outgrew PC databases, but that message bombed, Coleman said.

Interbase "is nice technology, but Borland no longer has the resources to compete with the big boys," he said, referring to Oracle, Microsoft and other database powers.

And Borland knows it.

"Let's be realistic. Interbase is not going to go from being a very small market share in relational databases to a large share in the enterprise market," acknowledged Ken Gardner, Borland's vice president of products.

### More choice

Further, the deal expands operating system choices for Borland users unhappy with writing applications for only DOS or Windows. The vendors outlined plans to provide tools to let users port Paradox- or dBase-based programs to any platform Sybase supports.

Making good on its promise should erase a long obstacle to deploying Borland-based applications company-wide, Thomas said. "We have a huge Mac installation in London, along with HP/UX, that can't use any Paradox stuff we have developed," he said.

But the prospect of Borland partnering with Sybase to the exclusion of other popular relational database makers worried Terrence Crow, a dBase developer at a Reynoldsburg, Ohio, firm.

Crow's company, which he asked to remain unidentified, is mainly an Oracle shop. "The fact that [Borland is] getting so cozy with Sybase makes me nervous," he said.

Gardner maintained that the arrangement does not preclude Borland from working with other database providers but added that Borland is "not in discussions with someone else."

Babcock is Computerworld's technical editor. His MCJ Mail address is 575-2377.



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## News Shorts

**Trojan horse found in Internet software**

The Computer Emergency Response Team (CERT) at Carnegie Mellon University in Pittsburgh last week said a Trojan horse was found in some versions of the Internet Relay Chat (IRC) client source code for Unix. The problem was found in IRCII Version 2.2.9 and provides a back door through which intruders can gain unauthorized access to IRC users' accounts. "Intruders are actively exploiting this back door," the CERT said in an alert. The CERT also said that it has issued IRCII Version 2.6, available from many sites by anonymous File Transfer Protocol.

**United repairs its maintenance systems**

United Air Lines is putting its 25-year-old aircraft maintenance systems in the repair bay for a re-engineering overhaul. Last week, the \$14.5 billion airline said it will start rolling out Unix-based, distributed maintenance systems in January. In three years, the fully deployed maintenance system will run on about 350 Unix servers and 10,000 client machines.

**IBM pushes on-line purchasing**

IBM is extending and expanding a pilot program for an on-line service aimed at enabling companies to buy computers, office supplies and other equipment and services electronically from multiple vendors. One customer has tested the program for the past year, and several additional pilots are now starting. IBM said. Orders are placed using electronic data interchange technology.

**Lotus adds Notes to SmartSuite box**

In a humdrum deal to shore up its desktop sales by attracting Notes users, Lotus Development Corp. is bundling Notes with its SmartSuite set of desktop applications. For \$995, users get two Notes Release 3.2 clients, one Notes server, several Notes applications, two SmartSuite 3.0 licenses and 90 days of free phone support. Lotus officials said last week. Sold separately, the components cost roughly \$2,590. Separately, Lotus will begin shipping bundled Unix versions of Notes.

**Modem heavyweights plan merger**

U.S. Robotics, Inc. said it would merge with Megabits Holding Corp. in a stock swap valued at \$213 million. The deal combines U.S. Robotics, one of the largest players in the corporate modem market, with one of the leading players in the developing PCMCIA modem market. U.S. Robotics will issue stock to cover the transaction, which must still be approved by shareholders and regulators.

**IS exec to head up Prudential Insurance**

Arthur F. Ryan, 52, who joined The Chase Manhattan Bank NA in 1972 as data processing project manager and rose through the ranks to become president and chief operating officer in 1980, was named chairman and chief executive officer at Prudential Insurance Co. of America.

**SHORT TAKES** Fore Systems, Inc. in Pittsburgh last week announced a product rollout aimed at bringing Asynchronous Transfer Mode to PC and Macintosh desktops. ... Stuart Sugarman, 45, was named managing director and head of information technology at Deutsche Bank North America in New York. ... The IEEE 802.12 working committee last week approved the draft standard for IEEE 802.12. ... The Computer Leasing and Rental Institute last week filed a motion in U.S. District Court opposing IBM's attempt to abolish a 36-year-old antitrust agreement.

# Waldenbooks upgrades

Installs new POS system weeks before holiday shopping season

By Julia King

With less than six weeks to go before the day shoppers call "Black Friday," Waldenbooks, Inc. is rolling out new point-of-sale (POS) systems to 650 outlets. The move has prompted suggestions that Rick Kish, vice president of information technology at the nationwide bookstore chain, may want to have his head examined.

"Doing a major POS rollout four or five weeks before Thanksgiving is usually something you do not want to do in the [information technology] world," Kish said. "But the real risk for us would have been going through another Christmas with the old system."

Replacing the stores' 15-year-old POS terminals with new IBM 486-based cash registers is only the first step in a more comprehensive client/server-based store systems project, Kish said. After Jan. 1, plans call for the registers to be linked to in-store Unix-based Unisys Corp. servers, which in turn will be linked via a satellite network spanning all 1,100 of the chain's outlets.

"The concept is to get any information from any terminal in any store—even cash registers can go across the network and get

book or title information," Kish said. What was not part of the system during the holiday countdown.

As early as last summer, Waldenbooks' information systems department, working with Post Software, Inc. in Raleigh, N.C., had a pilot system up and running. Also well under way was the replacement of older Telex Ring cabling systems with more flexible in-store Ethernet LANs. The curve ball came when IBM delivered 486 models that were larger and less durable than Waldenbooks wanted.

In mid-September, after IBM had re-engineered the machine, "we literally got the first ones out of the boat from Singapore," Kish said.

The new POS system software, written in C by the Stamford, Conn., retailer's IS staff, is being released in two phases, primarily to ease store clerks' transition to the system during the hectic holiday shopping crunch.

During Phase 1, for instance, the look and feel of the registers will be similar to what clerks are used to but will offer several time-saving advantages. Chief among these are faster speed and the ability to automatically generate credit-card receipts.

"Since our registers were a little on the anemic side, we were still frantically credit slips," said Lou Ann Leary, director of store and marketing systems. "Now, we'll be with the rest of the retail world in printing credit slips from PC-based registers."

"Close-out time at the end of the day is also cut in half because the [new] machines are processing faster," she added.

"There is no question that rolling out the new system is a 'giddy thing' to do. Most retailers don't roll out anything this time of year," said Tom Friedman, editor and publisher of "Retail Systems Alert," an industry newsletter in Newton, Mass.



The system will include IBM 486 PC-based registers

## AT&T tests Network Notes

By Lynnda Radosevich

AT&T Corp. last week began pilot tests of its Network Notes groupware service and plans to announce a handful of partners at Comdex '94 next month.

Network Notes is an Internet-style network service based on Notes that TDS 94 project. And AT&T announced last March. AT&T's role will be to operate public Notes servers and communications lines. Business users will be able to maintain information on the servers and let others access the servers via specialized Notes clients.

"It gets more people involved in Notes without having to get in servers and worry about the administration aspects of it," said Arthur Trantolo, manager of advanced technologies at Asea Brown Boveri, Inc.'s business services division in Windsor, Conn.

At Comdex, AT&T plans to announce which companies are participating in Network Notes market trials. The partners plan to demonstrate Network Notes products and services at the show and deliver them shortly after AT&T launches the service in the first quarter of next year. Confirmed partners include the following:

- EIT Technologies, Inc. in Kirkland, Wash., will pilot an application that lets law firms receive case assignments from clients.
- GroupQuest Software, Inc. in Los Angeles will offer Notes applications such as a call-tracking system working over Network Notes.
- Individual, Inc. in Cambridge, Mass., will offer its news retrieval/filtering service over Network Notes.

• WordLink, Inc. in Champaign, Ill., will offer analysis, design and installation services.

• Trintec Corp. in Palo Alto, Calif., will extend its Info-Pump software for transferring Notes data to and from other database formats to work with Network Notes.

• Egghard Discount Software, Inc. in Issaquah, Wash., will offer an electronic commerce service that lets corporate customers purchase hardware and software products via the network.

**What can it do?**

Overall, the market trials will test Network Notes communications capabilities. Most trials will run over a 56K bit/sec. AT&T frame-relay network. The trials will also test the customized Notes clients, which give companies control over who accesses their Network Notes information and which parts of the database customers can see, according to Larry Moore, vice president of Lotus' telecommunications services group.

While interest in the scheme is high, several observers said the full value of Network Notes will not be realized until Lotus delivers Notes Release 4, with the management and dial-through routing features necessary to run large-scale Notes servers.

But several sources close to Lotus said Notes 4 is likely to be delayed—to late 1995 or early 1996—because Lotus has to develop the new version for multiple server platforms simultaneously. A Lotus spokesman said the company intends to ship Release 4 in mid-1995.

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# CA takes desktop accounting multiplatform

By Thomas Hoffman

If the client/server accounting software market were a rotillo, Computer Associates International, Inc. would be late for the dance. But the Islandia, N.Y., software giant may yet become the belle of the ball because the products it introduced last week address several short-

comings in an otherwise nascent market, users and analysts agreed.

CA introduced CA-Accept/2000, a Windows-based accounting package for workstations and LANs, and CA-Masterpiece/2000, a set of global accounting modules designed to run on a variety of mainframe, midrange and Unix platforms.

Unlike competing products from market leaders such as SAP America, Inc., Oracle Corp. and Dun & Bradstreet Software that were designed to run on specific databases and hardware platforms, CA-Masterpiece/2000 provides a common look and feel for multiplatform accounting. This is a key requirement for multinational organizations that run

their operations across a plethora of heterogeneous systems between regions.

"CA's architecture is extremely flexible in terms of environment and database, and other software vendors we considered didn't offer those types of choices," said Gary Compagno, director of financial systems at Ames Department Stores, Inc. in Rocky Hill, Conn.

Ames had considered accounting packages from D&B Software and Sterling Software, Inc. The department store chain, which will soon install CA-Masterpiece/2000, on an IBM 3090 mainframe, plans to add Unix version of the package running on an AT&T Corp. 3550 server by 1995.



CA's David Duplisea: The Windows accounting packages sport multicurrency capabilities

## Beyond the port

Although CA-Masterpiece/2000 carries some of the features inherent in the mainframe predecessor CA-Masterpiece package, the latest software is much more than a port of mainframe code, according to David Duplisea, CA's director of financial applications strategy. For example, both CA-Masterpiece/2000 and CA-Accept/2000 contain new multicurrency processing capabilities and tax services, he said.

"Part of what surprised me is that these new products are nothing like their prior versions. They're radically better," said Ed Black, manager of solutions research at Aberdeen Group, a Boston consultancy.

Despite its glitzy new offerings, CA will continue to face stiff industry challenges.

For example, SAP and D&B Software are moving away from server-based pricing models to usage- and user-based pricing of their accounting packages, a trend to which CA and others will be forced to react, according to Jeff Comport, research director of software management strategies at the Gartner Group, Inc. consultancy in Stamford, Conn.

CA-Accept/2000, priced at \$1,295 per module, is being offered at an introductory price of \$995 per module until March 31, 1995. CA-Masterpiece/2000 is priced from \$15,000 for Unix servers to \$40,000 for IBM mainframes. CA-Masterpiece/2000 client software is priced at \$995 per station.

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bet the future of your company — and your career — on promises? Instead, call 1-800-HP-KNOWS and talk to the company that has a clear vision of the future.



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## No monopoly

CA is already well-positioned in desktop accounting. Its DOS-based CA-Accept Plus package is the worldwide revenue leader for high-end accounting software, with 23.6% of the market, according to a recently completed study by International Data Corp. in Framingham, Mass.



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# StorageTek fast-forwards tape drive

By Craig Steedman

Storage Technology Corp. is starting limited shipments of a new 36-track tape subsystem that uses direct channel attachment to transfer data much faster than conventional 3480-class devices. Beta testers said the improvement should free tape from its reputation as the main bottleneck in the backup process.

However, the improved performance will come at a premium. Industry sources said the Timberline drives, listed at about \$56,000, the per-drive cost of StorageTek's vanilla 3480-compatible Silicon device is \$23,360. While Silvertron requires a separate \$72,000 controller, Timberline would become more expensive in configurations with more than two drives.

Timberline's data transfer rate is twice as fast as Silvertron's (see chart), but users and analysts said it will provide even higher performance boosts in multivolume configurations.

STORAGE TECHNOLOGY'S TIMBERLINE TAPE DRIVES  
WILL BE HIGH-END COUNTERPARTS TO THE  
COMPANY'S SILVERTRON DEVICES

	TIMBERLINE	SILVERTRON
Uncompressed cartridge capacity	800M BYTES	800M BYTES
Transfer rate	6M BYTES/SEC.	3M BYTES/SEC.
Controller	BUILT-IN	SHARED EXTERNAL
Channels supported	4/ECON \$50K 2 PLANNED FOR NEXT YEAR	4/SCSI \$150K STANDARD BUS AND SAS
List price	\$56,000 PER DRIVE	\$46,700 FOR TWO DRIVES; \$72,000 FOR CONTROLLER

Source: Storage Technology Corp. and industry sources

The new drives have built-in controllers and attach to Econ channels so that each can move data simultaneously, sources said. By comparison, standard 3480-class devices such as Silvertron are usually connected in dual external controllers in groups of up to 16 drives, only two of which can transfer data at a time.

Direct channel attachment is the revolutionary difference they've got" with Timberline, said Tom Birk, operations

manager at the Environmental Protection Agency's national computer center in Research Triangle Park, N.C. The EPA is one of seven beta sites for the StorageTek drives.

**No drive drawbacks**  
Timberline has "jumped the envelope" in the tests run by the EPA, Birk said. "The constraints are not in the [drive] anymore, which has been the case with tape," he said. "Now you're constrained by how fast you can feed it. The bottlenecks are in the transmission medium rather than the devices."

The performance gains should help the EPA shorten its backup runs, which "are coming real close" to not getting done within their allotted time periods, Birk said.

IBM, StorageTek's main competitor in the tape business, plans to ship a faster drive of its own next year (CWI July 4).

The IBM device also will use new 100-byte cartridges, giving it 12 times the 3480's 500M-byte capacity. However, it will be 3480-compatible, leaving StorageTek with advantage in that class, said Nick Allen, an analyst at Gartner Group, Inc. in Stamford, Conn.

Prudential Securities, Inc. is "seeing a big benefit" from Timberline, which reduced one particular batch job from 45 minutes to 18 minutes, said Bruce Mellis, senior vice president of information systems at the New York firm. He replaced 16 of his 96 Silvertron drives with Timberline devices as part of the beta testing, but he said purchases will partly depend on cost. Prudential probably will blend Timberline and Silvertron drives to get performance improvements "without having to replace everything at once," Mellis added.

Gary Francis, vice president of StorageTek's tape business, agreed that customers with adequate batch windows may not want to pay the extra price commanded by Timberline. But the new drives should account for a majority of StorageTek's 36-track production by the first quarter of 1985, when general availability is scheduled to start, he said.

## ODBC tool provides single point of entry

By Michael Fitzgerald

• Gaining a single point of entry into multiple cross-platform databases is a costly and difficult process, but a new tool may help address both issues for remote users.

On Nov. 1, Dharma Systems, Inc., a small toolmaker in Nashua, N.H., will announce ODBC Integrator, a tool that will run on Windows-based desktop and sell for \$400, according to documents obtained by *Computerworld*. ODBC Integrator purports to offer a customizable development tool that would let corporate developers give remote or mobile users synchronization and access to data across platforms.

Object Database Connectivity (ODBC) is a protocol that lets incompatible databases share basic data. Almost all database vendors support it.

To date, tools that allow queries have been available only on the server and for a much higher cost — \$50,000 to \$400,000 — than the \$400 per copy Dharma will charge for its tool, the documents said.

The product will hit beta testing as of its announcement, with a ship date of first-quarter 1985. It will offer many features to the following developers, including the following:

- Synchronization between the remote PC and the corporate data tools.

- Remote data access to multiple databases.

- A form of data warehousing that lets users collect multiple data dumps at one time.

### Closed month

Company officials declined to comment on specific details, but Swarup S. Conjevaran, manager of product marketing at Dharma, said the company was working on a way to bring enterprise-quality database integration down to the desktop.

Conjevaran said the ability to use the client PC as the jump-off point for ODBC-based queries will be cheaper and easier than host-based methods.

ODBC Integrator takes advantage of the widespread use of the ODBC standard by database makers such as Sybase, Inc. and Oracle Corp. It does not address performance issues with ODBC (see story at right).

Users contacted said the product has some potential interest for them.

"I'd have to take a look at it, but... that is the direction we're going," said Geoff Iverson, a database administration team leader at Baxter Healthcare Corp. Baxter runs IBM's DB2 and DB2 databases and Microsoft's SQL Server environment.

Multidimensional databases gaining ground. See page 69.

## Microsoft sails ODBC

CONTINUED FROM PAGE 1

sourced on the concept.

Brooklyn Union Gas, for example, noted ODBC after internal tests disappointed the New York utility. ODBC-based drivers "were very slow, and it wasn't just a matter of a few seconds," said Gloria Castro, director of database administration. Specific benchmarks results were not available, but Castro said Brooklyn Union ultimately chose native links to Sybase, Inc.'s SQL Server for their speed.

Further frustrating some users and analysts is the fact that Microsoft has seemed to promote its Object Linking and Embedding (OLE) technology over ODBC, said Michael Bragen, principal at Business Management Consulting in Lexington, Mass.

"Microsoft is really trying to muscle in with OLE access, so people are worried that if they're relying on ODBC they may be orphaned," Bragen said.

Microsoft denied the recent rumors that it is backing away from ODBC by making it a component of OLE. "All Microsoft applications will continue to use ODBC, whether within or outside of OLE," said Beth Chapman, database connectivity project manager at Microsoft.

### Silver lining

Ideally, applications that support ODBC would be able to access multiple back-end databases, freeing users from having to put all corporate information on one brand of database. But with that flexibility come trade-offs, several users and analysts said in recent interviews:

- Shuttling data through ODBC can be up to 50% slower than using a native link to databases.

- ODBC blocks applications from using more specialized features of a back-end database.

- ODBC-based drivers do not support Unix.

Moreover, the slow interface has led to exploiting some advanced features that Sybase, Oracle Corp. and others offer, critics said.

Instead, disaffected users have opted for direct, native connections between client applications and back-end databases.

"We certainly are aware of performance problems of some of the Version 1.0-based drivers," Chapman said. "It takes a while to learn how to get that technology to perform."

Further, third-party driver makers and users "got confused about performance and blamed it on ODBC," she added. Some people wrote ODBC-compliant drivers that made calls to, say, Oracle's proprietary interface, which sits above the core database engine. The extra layers add overhead and slow data retrieval rates, she said, while drivers that make direct calls are generally faster.

### Selective placement

Although the March introduction of ODBC 2.0 partially righted those wrongs, some ODBC supporters are still cautious. Ceterpillar, Inc. in Peoria, Ill., employs ODBC in a handful of client/server manufacturing applications, but it carefully selected those where "we knew we wouldn't be pushing for top-speed performance," said Bob Kline, a systems engineer.

ODBC 3.0, which is expected to further improve speed and functionality, is not due until late next year, Chapman said.

Vielgelm, meanwhile, wants to turn ODBC into a must-have for corporate information systems by addressing performance. "We want to build a driver from the bottom up to make sure it's good for high-performance OLTP," said Terry Langstaff, marketing vice president.

But full redemption may not be possible.

"ODBC is good for low-end work, but I think they had their chance with it and didn't come through," said Marty Solomon, senior data processing officer at Connecticut Mutual Life Insurance Co. in Hartford, Conn.

Oracle plans to offer a dozen or more such links, some built in-house and others the result of joint engineering with Information Builders, Inc. Sybase and Borland International, Inc. last week agreed to jointly integrate their products (see story page 6).





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# Rising European tide lifts systems makers

By Craig Stedman

Eager hands across the water and open wallets were a welcome sight for computer vendors in the calendar third quarter. IBM, Digital Equipment Corp. and other companies enjoyed better-than-expected financial results thanks to a resurgence in European hardware spending.

While U.S. demand improved in the first half of the year, the European economy "was still pretty sluggish," said Curt Rohman, an analyst at CS First Boston Corp. in New York. Now, however, "you've got a very good economic environment out there" worldwide, he added.

"The worst is behind them in Europe," agreed Jay Stevens, an analyst at Dean Witter Reynolds, Inc. The traditional summer slowdown caused by lengthy European vacations "may have been there, but it's hard to spot in the results" reported last week, he said.

## Awakened giant

IBM once again stood out from the crowd—a turn of events that was pretty much unthinkable at the beginning of the year. The computer giant beat Wall Street forecasts for the third straight quarter with profits of \$698 million, compared with a \$70 million loss a year ago. In response, both Rohman and Stevens upped their projections for

the remainder of this year and next year.

Revenue rose 7% to \$15.4 billion, fueled by a 17% improvement in hardware sales that included an almost surreal component: an actual increase in IBM's mainframe business. It was the first time mainframe revenue had gone up since the second quarter of 1992, according to IBM.

Jerome Vior, IBM's chief financial officer, said it will be "much better" to increase big iron sales again in the fourth quarter. But he noted that the mainframe business should be down only about 15% for the year, much better than the 50% decline IBM forecast at one point.

Digital, meanwhile, reported a smaller-than-expected loss of \$151 million for

its fiscal first quarter, along with a surprising 4% revenue increase to \$3.1 billion. "We finally got some revenue growth, and that's what was missing," said Michael Geron, an analyst at Pershing & Co. in Jersey City, N.J.

Sales of Alpha AXP systems more than doubled compared with a year ago. However, Rohman said the demand is mostly coming from VAX shops attracted by Alpha's lower sales and maintenance costs. "I still don't see new customers moving to DEC," he added.

Sun Microsystems, Inc. also posted strong results for its fiscal first quarter, with profits of \$38.4 million on revenue of \$1.27 billion. Revenue growth was 23% over last year, a level that best even Sun's

expectations, said Scott McNulty, the company's chairman and chief executive officer.

"It was a generally good performance across all geographies and throughout the product line," agreed Jeffrey Canin, an analyst at Salomon Brothers, Inc. in San Francisco.

## Falling behind

Unisys Corp. did not come off as well as other vendors—its third-quarter profits dropped by almost 50%, to \$42.9 million. Revenue also fell slightly, but the company's fledgling European business finally began to rebound. Unisys said it still hopes to see revenue growth in the fourth quarter, something it has not been able to do since returning to profitability in 1992.

Among software vendors, Computer Associates International, Inc. had another stellar performance, including 11% sales growth for its mainframe software cache. "CA blew away the numbers again like they've done in a lot of recent quarters," said Stephen T. McClellan, an analyst at Merrill Lynch Global Securities in San Francisco.

*CW staff Mary Brandel, Thomas Hoffman and Jean S. Bowman contributed to this report.*

Company	Revenue (\$ mil.)	Profit (\$ mil.)	Revenue (\$ mil.)	Profit (\$ mil.)	Change (%)
	Third Quarter 1993	Third Quarter 1992	Third Quarter 1993	Third Quarter 1992	
IBM	\$2.8B	63%	\$200M	88%	
Compaq Computer	\$623M	24%	\$130M	49%	
Digital Equipment Corp.	\$3.1B	4%	-\$131M	-15%	
Sun Microsystems	\$15.4B	9%	\$689M	NM	
Unisys Corp.	\$2.9B	28%	\$659M	13%	
Computer Associates	\$25M	44%	\$2.6M	21%	
Software AG	\$1.3B	33%	\$38M	131%	
Novell Inc.	\$173M	-6%	\$18M	206%	
PerkinElmer	\$19M	-12%	\$52,000	-97%	
Microsoft Corp.	\$1.8B	-1%	\$43M	-45%	

NM = Not meaningful

# Gerstner backs AS/400 future AMD chip Pentium-like

By Paul Gilkin  
SARANTONIO

IBM Chairman Louis V. Gerstner last week cast a strong vote of confidence in the AS/400 product line, saying IBM intends to spend \$1 billion this year in research and development on the platform.

In an address to the Common Fall '94 User Conference here, Gerstner tried to reassure a user base that has been concerned by single-digit percentage sales growth in the AS/400 market during the past two years.

IBM also reported late last week that AS/400 revenue grew 11% in the fiscal third quarter, increasing 25%.

IBM will maintain a dual-midrange systems strategy with the AS/400 and AS/390 indefinitely, Gerstner said. "As long as people buy them and shareholders make money, I'm willing to keep several brands in the marketplace," he said.

The message played well to the partisan crowd of 4,000 users. "It was a very emphatic message of support," said A. David Dunne, manager of technical services at Teachers Insurance and Annuity Association College Retirement

Investment Fund in New York. "This is someone who used to get on being customer-driven."

Rather than try to unify the AS/400 and AS/390, IBM will focus on creating a common underlying hardware component and making each system capable of running multiple operating systems, Gerstner said. He also promised to revamp IBM's notoriously complex and disconnected billing system but did not provide details.

Although some users complained that the speech was long on rhetoric and short on specifics, Gerstner's appearance at the conference—the first ever by an IBM CEO—drew praise. "There is no arrogance there," said L. Gary Nakashima, vice president of Strategic Systems at Strategic Systems Technologies in Cary, N.C., and a Common board member.

Gerstner also said the following:

- Pledged to make the AS/400 compatible "with any platform," although he did not specify which non-IBM workstations this might include.
- Said he has met with or spoken to 18,000 customers in the last 18 months.
- Said he wants to provide a single phone number for AS/400 customer support.



IBM's Louis Gerstner pledges support for the AS/400 platform

By Jai Kumar Vijayan

After losing a round in the courts to semicon Intel Corp., chip maker Advanced Micro Devices, Inc. (AMD) last week disclosed design and technology details of its fifth-generation, Windows-compatible K5 microprocessor line.

The initial product—the K5 Pentium-class chip—is AMD's first self-originated RISC processor that does not contain any Intel code, the firm said. A U.S. District Court judge last week ruled AMD had violated copyright laws in using a certain piece of Intel's 1498 code on its clone of the 486 chip.

## Better and compatible

The superscalar, 4 million-transistor chip, which integrates RISC and Intel's x86 capabilities, offers at least 50% higher sustained performance than current Pentiums and will be available in a Pentium-compatible socket, an AMD spokesman said. The processor family will be compatible with legacy software applications written for Win-

dows and Windows 95, he said.

The chip is expected to net the stage for more non-Intel-based Pentium-class systems from a variety of systems vendors, including desktop leader Compaq Computer Corp., by mid-1995, analysts said. Though there are some questions related to backward compatibility with legacy software and future Pentium software, AMD said it is carrying out extensive tests to make 100% sure the processors run all Intel software.

"It looks like real nice architecture and a very sophisticated design," said Martin Reynolds, an analyst at Computer Intelligence InfoCorp in Santa Clara, Calif.

Contributing to the high performance of the chip are out-of-order instruction execution and branch prediction with speculative execution of instructions, which maximizes the number of instructions per clock cycle, Reynolds said.

Despite the RISC platform, no recompilation or emulation of x86 software is necessary to achieve optimum performance, AMD said.

# Glowing results overshadow PC concerns

By Jal Kumar Vijayan

Compaq Computer Corp., Apple Computer, Inc. and Intel Corp. all reported record earnings for the quarter ended Sept. 30. Desktop leader Compaq announced earnings of \$201 million on revenue of \$2.84 billion, up 88% from the same quarter a year ago. Chip monolith Intel said profits of \$659 million on sales of \$2.24 billion represented a 13% jump from a year ago. Apple, too, reported sharply higher earnings: \$114.7 million on sales of a record \$2.49 billion, a 16% jump from last year's sales of \$2.14 billion.

Meanwhile, former market leader IBM PC Co. continued to struggle. In briefings with analysts last week, IBM indicated that while its PC business showed encouraging improvement during the quarter, it still had a ways to go to regain lost market share. That point was also made clear at last week's PC Co. announcement (see story page 16).

## Not so fast

Despite the generally sunny results, there were signs that the desktop market is in a state of flux.

### Top 3

HP ranked highest, followed by Digital and Compaq, in a survey on desktop PC customer satisfaction by marketing data firm I.D. Power and Associates. The survey queried 1,538 business users who had bought computers in the past two years.

• Even after a fair quarter, IBM said it does not expect to regain lost market share until the end of the first quarter in 1995 at the earliest. IBM's PC revenue increased only 10% to 15% in the last quarter, well below the pace set by

other desktop vendors. The company said margins were also low due to an excess of older models.

• Despite record revenue at Compaq, margins actually fell during the quarter. The company recently conceded its leadership position in the portable market to Toshiba America Information Systems, Inc., and it is trailing Gateway 2000, Inc. in Intel Pentium shipments.

• Pentium sales in the corporate market are lagging expectations. Although Intel's margins jumped 13%, the company recently acknowledged it may not reach its target of shipping 6 million to 7 million units by year's end.

• Former market heavyweight AST Research, Inc., once among the fastest-growing PC companies, last week warned investors of a loss of about \$40 million on projected revenue of \$495 million for the quarter. It has started cutting its work force of 6,900 by about 10%.

Moreover, other companies could also give some of the desktop leaders a run for their money in the current quarter. These include Hewlett-Packard Co. and Digital Equipment Corp. in the business markets and Packard-Bell Electronics, Inc. and Acer America Corp. in the consumer segments, analysts said.

"It's regular market dynamics," said Randal Giusto, an analyst at BIS Strategic Decisions in Norwell, Mass. "Most of the ones coming up so fast have been cushing in on the weakness of desktop leaders," especially on availability issues, he said.

"There have been some dramatic changes in the top. The biggest movers

have clearly been HP and Digital," and they may have begun to cash in on other features such as price/performance, systems reliability and operating systems support, said Robert Lunn, an analyst at marketing information firm J. D. Power and Associates in Agoura Hills, Calif.

Pentium may also be making a difference, particularly in the consumer and

retail markets, according to Ted Julian, an analyst at International Data Corp. in Framingham, Mass.

Compaq and IBM have been relatively slow to market with Pentium-based systems, and this may have allowed companies such as Packard-Bell, Gateway, Acer and Dell Computer Corp. to gain a strong foothold, especially in the first-time buyer segment, analysts said.

AST unveils high-end systems. See page 51.

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## Product revamp

# PC Co. lays out latest strategy

By Michael Fitzgerald

IBM PC Co. did its own version of the Rocky Horror Picture Show's "time warp again" last week, announcing a slew of products and a new strategy for the beleaguered maker.

While customers were not exactly dressing up to celebrate, they said IBM's latest song and dance sounded reasonable. IBM announced ThinkPad notebooks, a desktop brand strategy that merges the PS/2 and ValuePoint lines into a new brand and the IBM PC Server, IBM.

"They're trying to figure out who they are and what they're going to be when they grow up. We want them to survive and be healthy," said John Woods, a PC systems specialist at Chevron Information Technology Co. in San Ramon, Calif. Chevron has standardized on IBM ValuePoints and Hewlett-Packard Co. Vectra desktops.

Woods said he thought IBM's decision to merge the ValuePoint and PS/2 lines into the IBM PC Desktop Series was a good one and would reduce confusion among users.

**Looking for the simple life** Richard Thoman, IBM senior vice president and head of PC operations, said combining desktop brands will help IBM simplify its offerings. He noted that the Top 6 PC makers sell 48 brands and 450 models among them. After last week, the number of IBM brands dropped from nine to four and the number of models dropped from 190 to 85.

Among the more curious aspects of the announcement was the amount of technology that moved into corporate lines from consumer product lines. Such features included Rapid Resume Manager, which turns the system on at the same point at which it was last used, and Online Housecall, a support feature for remote troubleshooting. The Desktop Se-

ries 300 and 700 also have NetPlace. IBM's server-based management software.

Analysts called the new products a solid step forward. "The products are outstanding, they really are," said John G. Dunkle, president of WorkGroup Technologies, Inc. in Hampton, N.H.

## A ways to go

As for Thoman's vision and IBM's general effort to revitalize itself, analysts said it was unclear how much ground IBM can regain on the competitive.

"There are so many good alternatives [to IBM] now HP is going like a house afire, and Dell has kind of mended a lot of fences," said Leslie Fiering, an analyst at Gartner Group, Inc.'s Santa Clara, Calif., office (see related story page 15).

Thoman said in prepared remarks. "Other PC vendors may be able to compete with an IBM under repair, but I challenge them to compete with IBM in a race that measures a lot more than just market share."

Thoman cited IBM's technology leadership—the computer giant had 1,067 patents last year, 124 of them in the PC realm compared with Compaq Computer Corp.'s 15—and its worldwide support, manufacturing and distribution as examples of what sets IBM apart.

Still, Jerome York, IBM's chief financial officer, told Wall Street analysts last week that the company does not expect the PC Co. to reach full health until late next year. "This business has a long way to go," he said.

Inventory levels have been reduced from their crushing second-quarter levels, and IBM does not have "fire sales" going on, York added. "But we still have a lot of stuff that's older than we would like, and that means margins are not as good as we would like."

*Senior editor Craig Stedman contributed to this story.*

By Jean S. Bozman

**SunSoft, Inc. this week will launch its SolarNet PC LAN administration software, which can manage hundreds of PCs from centralized consoles. Shipment comes months after SolarNet debuted at the April Solaris developers conference in San Francisco.**

Users of SunSoft's PC-NFS 5.1 said last week the task of installing systems and application software on PCs attached to SunSoft's Network File System (NFS) servers is often time-consuming. "SolarNet was the next piece of software we were waiting for," said Gary Duffy, financial services superintendent at Barrick Goldstrike Mines, Inc., located outside Elko, Nev., which recently installed PC-NFS 5.1.

"Right now, our administrators have to go [over] to the 200 PCs on our LANs," Duffy said. "But this will allow them to remotely log on to a remote machine and diagnose the trouble from a central IS location."

Auburn University's College of Engineering in Auburn, Ala., has been beta-testing SolarNet PC-Admin for TCP/IP administration since late last year, said PC administrator Ray Hillbrand. Five information systems staffers install and configure more than 500 networked PCs and 400 Unix workstations, but the site plans to put SolarNet into production at a 46-PC university lab in December.

"It'll go over well, we'll probably see a rapid deployment of this," Hillbrand said.

Industry analysts said SolarNet will bolster

SunSoft parent Sun Microsystems, Inc.'s move to position its high-end Unix servers as enterprise managers of distributed PC LANs. SunSoft said the package—able to be shipped this year and next—will give PC users access to file, print and application services and support centralized administration of distributed PCs.

"People would like to have the manageability they need to have in their mainframe or mini-computer machines," said Dan Kusnetzky, a similar site analyst at International Data Corp. in Framingham, Mass.

## An IS nightmare

Michael Corey, a longtime user of Sun machines, said he thinks IS console products for PC LANs address a key IS need.

"Everybody thinks PCs are great, but PCs are an MIS staff's nightmare," said Corey, vice president of Database Technologies, Inc. in Newton, Mass., and an International Oracle Users Group official. "The reality is that when the network's slow, people are copying things to the local drives. So you don't know what software [release] all those people are using or where it is or how it's installed."

The SolarNet/PC-Admin product for TCP/IP administration will ship immediately for \$2,250 per server and \$300 per client. A second package, PC-NFSpro for Windows, costs \$375 for a single-user license. Also shipping this month are 579 Windows upgrades from SunSoft's earlier PC-NFS for DOS packages, SunSoft said.

Warp solves some OS/2 problems. See page 39.

# OMG chooses TCP/IP standard

By Jean S. Bozman

**In a move users said was long overdue, the Object Management Group (OMG) last week settled on the popular and ubiquitous TCP/IP networking protocol as the final piece of its next-generation object standards.**

"We've been shouting as loudly as we can to get one mandated standard" for distributed object interoperability, said Peter Walker, chairman of the OMG's end-user special interest group. "We have what we wanted—one mandated standard with many other options."

One of those options will be the Open Software Foundation's (OSF) Distributed Computing Environment (DCE) remote procedure call, which emerged as the loser in last week's OMG task force vote. At issue was which technology would become the network protocol of choice for the Common Object Request Broker Architecture (CORBA) 2.0 standard.

Although the vote still needs approval by the OMG's 85-member technical committee, the choice of TCP/IP was seen as a watershed event in the contentious struggle to set universal object standards. A universal object request broker (ORB) will supposedly let users send data requests to any server on an enterprise network—just as telephone callers today can easily reach one another around the world.

"What this gives us is an interoperability

standard for communication between object request brokers. It will give us some guarantee in the future that we'll really be able to operate between ORBs" from different vendors, said Jeff MacIsaac, a senior staff engineer at Sybase, Inc. and a member of the OMG task force.

"If you're on a TCP/IP network, you can count on the fact that your ORBs will interoperate regardless of whether you're using DCE or something else," he added.

"The people who were backing DCE as the sole solution didn't get what they wanted," said Richard Soley, vice president and technical director of the OMG. "But more importantly, OMG didn't abandon the user base of DCE."

That accommodation was critical because OSF founders—Digital Equipment Corp., Hewlett-Packard Co. and IBM—backed the DCE proposal [CW Oct. 17], as did some of the world's largest end-user information systems shops.

The TCP/IP camp was led by the Universal Network Objects coalition, backed by SunSoft, Inc., Sun Microsystems, Inc. business partners Lu Technologies Ltd. and ICJ Ltd., and Bell Northern Research.

They proposed a TCP/IP "handshake" connection between communicating ORBs, which would be quicker and easier to install on client machines and require less system memory than the DCE proposal.

Sophies beats IBM with new SOM tool. See page 73.



IBM senior VP Richard Thoman challenged vendors to compete with a "repositioned" IBM operating at full throttle



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# Retailers wary of electronic commerce

By Ellis Boker

Even as they upgrade systems at the checkout line and in back offices, retailers are carefully watching the growth of the Internet and other on-line services as they try to predict just how electronic connections will affect the shopping experience.

The impact of on-line commerce grabbed and held center stage two weeks ago at the Retail Information Systems Conference (Risccon '94) in Las Vegas, which drew more than 5,500 attendees.

"Prepare yourselves for a world where a lot of your buyers are computers, not people," said Nicholas Negroponte, director and founder of the MIT Technol-

ogy Media Laboratory in Cambridge, Mass.

Analyzing several trends during a speech at the conference, Negroponte predicted shoppers will increasingly use intelligent agents — software programs that are aware of their preferences and needs — to enter global electronic markets.

Today, on-line transactions between retailers and their major suppliers are fairly routine. Electronic data interchange (EDI) standards and value-added data networks have proved their worth, streamlining communications between, say, a department store's appliance department and the microwave manufacturer.

"There's a convergence of technology... and a few people in the business will be willing to try [this medium]," said W. Andrew McKenna, senior vice president of information systems at The Home Depot, Inc.

Yet most retail executives are like Richard E. Mader, vice president and chief information officer at Bosov's Department Stores, Inc., an \$800 million chain in Reading, Pa. He said many of his peers are "still trying to get upgraded [inter-company] networks in place" before exploring the still-unproven value of Internet-based services.

Mader's immediate goal is to upgrade the company's private network to its 28 stores from 18.2K bits/sec, dial-up lines to 56K bits/sec facilities to support advanced distributed applications, such as a bridal registry kiosk complete with images of the gift items.

## Many options

Risccon '94 also featured plenty of new products and services to help retailers that are more concerned with parking spaces than cyberspace.

IBM made the top product announcement, unveiling StorePlace, a family of OS/2-based point-of-sale (POS) systems. It promises other operating systems for the platform, which can handle not only text and numbers but video and image.

IBM also announced an object-oriented workbook, StorePlace Application Function Library for OS/2, which contains more than 2,000 objects for creating distributed, in-store applications.

Woodworth Corp. in New York plans to use IBM to implement StorePlace across 7,000 of its specialty stores in 13 countries starting next year, IBM said.

The promise of object-oriented programming was demonstrated on the show floor to James B. Ray, a consultant at McCredy & Associates Management Consultants in Seminole, Fla.

"I watched one vendor modify a POS application to capture the field [called] 'What's the weather like outside?'" Within 15 minutes, Ray said, the vendor had modified his program to accept this piece of information, which might be a valuable bit of intelligence for a department store trying to track how many umbrellas it sells during a rainstorm.

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U.S. unveils global trade network. See page 64.



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## Busy railroads

CONTINUED FROM PAGE 1

"Railroads are reluctant to gear up too aggressively in terms of adding new capacity for fear that if we get into an economic slowdown, the cars will sit idle," said Graeme Lidgerwood, a railroad analyst at CS First Boston in New York.

The IS department, on the other hand,

can address the problem more cost-effectively, said Rick Turner, general director of car management at Union Pacific.

"For every one-tenth of a day we improve car utilization, it allows us to avoid \$20 million in [new car] capitalization costs," Turner noted. Improving utilization by one full day saves \$200 million.

In the past five years, Union Pacific's real-time, mainframe-based transportation control system (TCS) has worked to shrink the average time between loads

from 15.8 days to 12.8 days, Turner said.

The TCS tracks customer orders, the status of shipments and the movements of some 80,000 cars a day. Taken together, all this information makes for "an enormous data system," which is why Union Pacific is reloading it onto an NCR 3000 Teradina system, Turner said.

At CSX, senior vice president George Sekeley said IS recently developed a new coal workstation system for more closely monitoring open hopper cars, which

were in short supply this past summer. The OS/2-based geographic information system tracks the status of all coal trains as well as customer demand and train assignments.

At Conrail, a mainframe-based car management system combines inventory information with weekly customer orders to generate daily pipeline reports, "which give you a snapshot of every car," said Fletcher Swanson, general superintendent of car management.

"For every car we move, we generate a trip plan, which provides information to our customers and to customer service



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The Newspaper of IS



Conrail's tracking system gives a snapshot of every car

as to the estimated time of arrival of cars," said Ralph von dem Hagen, vice president of customer service at Conrail.

"But the bad news," he added, "is that unlike CSX and Union Pacific, which are a little ahead of us, those trip plans are not directly available to the transportation people running the railroad. Each railroad in the country is at a slightly different stage as far as how integrated their transportation processes are."

### Trying for a link

On a separate industry front, the Association of American Railroads has scrapped plans to outsource development of an interline service management (ISM) system to handle the ever-increasing volume of shipments that are handed off between railroads before final delivery points are reached. Instead, the industry group is enhancing its legacy mainframe-based TRAIN II electronic data interchange (EDI) messaging system — a move expected to save participating railroads as much as \$20 million.

As long as railroads' internal systems remain disparate, the value of the industry's ISM internal system, which is fed by those systems, remains limited.

"It's like in the banking arena where if your bank doesn't do electronic funds transfer, there isn't electronic funds transfer," said Mark Davis, director of data management at Union Pacific.

For now, that common denominator is transmitting standard EDI messages containing arrival, departure and interchange updates. Down the road, however, ISM could evolve to include a central database that railroads could tap into, exchanging billing and rate information.

But for now, "that's a politically sensitive issue," said Randy Randazzo, vice president of technology at the railroad association. "Some railroads are concerned they'll lose their autonomy if we centralize too much."



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# U.S. Library digitizes images

Access, navigation technology lacking; eventual cost unknown

By Mitch Bets  
WASHINGTON

The Library of Congress this month snared \$13 million in private donations to put digital copies of its historical papers, photographs, maps, films and sound recordings on the information superhighway. But that was the easy part.

Now the library needs to digitize more of its vast collection as well as develop compression algorithms, user navigation software and a method for reimbursing copyright owners. It also needs another \$10 million for the long-term project.

The eventual cost of the National Digital Library is unknown, but the grand plan is to have up to 5 million images available by the year 2000 via the Internet and CD-ROM for use by students and researchers.

Initially, the project means scanning more public-domain images to put on the library's Internet-based World-Wide Web server, accessed by Mosaic browsers. But as the digital collection grows to millions of images, "we'll need more sophisticated search technologies that go beyond browsing," said Herbert S. Becker, director of information technology services.

Fortunately, many information specialists are working on that problem. For example, researchers at Stanford University in California are experimenting with an "information map" on which users would point and click on different points.

Other approaches include the use of on-line software agents for information retrieval or the use of animation, where the user moves down a data highway and passes road signs about the nearby attractions.

Furthermore, the library wants links between images and documents, so students could click on a famous portrait to get biographical text about the artist, for example.



Historical photos such as this Civil War photo of General George Custer will be available on the National Digital Library.

Terry Winograd, professor of computer science at Stanford, observed: "It's easy to do some of that, but it's not cheap to do a lot of it [for millions of images]."

The key is to find [a point] somewhere in the middle where it passes the cost/benefit test. There are other concerns. "The navigation tools are getting better. What's lagging behind are the social and policy issues," noted Charles R. McClure, distinguished professor of information studies at Syracuse University in New York.

The issue of copyright may be the toughest because there is no agreement on what is "fair use" of electronic materials in libraries and schools. "Somebody's got to cut a deal with publishers and authors. It will be contentious. There is no easy answer," McClure said.

**New Age copyrights**  
However, the library is collaborating with the Corporation for National Research Initiatives in Reston, Va., on an electronic copyright management system that would be a clearinghouse for copyright royalties and rules.

Similarly, the digital library at Case Western University in Cleveland has a prototype expert system called the Permission Manager, which administers the rules on using copyrighted material and even sends users bills.

"Plain vanilla" information from the digital library will be free to local schools and public libraries, unless there are copyright royalties, officials said. The private sector will be able to repackaging the information into multimedia programs for sale. But the most basic problem is that only 4% of U.S. schools and 13% of U.S. libraries have access to the Internet, and often those connections are too sluggish for multimedia. Becker said he hopes the educational value of the digital library will spur "more demand for public investment in the communications infrastructure."

# Universities to test digital collections

By Gary H. Andrews  
WASHINGTON

■ An eclectic array of advanced computer and communications technology will come together under a \$24 million program of digital libraries announced recently by the federal government.

The National Science Foundation, the Department of Defense Advanced Research Projects Agency and NASA awarded four-year, \$4 million grants to each of six universities to set up test beds for prototyping advanced information storage, retrieval and transmission technologies. Each of the universities is teamed with other universities, government agencies and private-sector concerns such as publishing and computer companies.

Carnegie Mellon University, one of the awardees, will team with Pittsburgh public television station WQED, Microsoft Corp., Digital Equipment Corp. and others to digitize science and mathematics materials from video sources. The university will use its own advanced speech recognizer to transcribe video soundtracks into a full-text information retrieval system.

"We need to understand the issues involving human/computer interaction," said Carnegie Mellon project director Howard D. Wachtel. "For example, how does searching video differ from searching text?"

## Also in the works

The other five projects include the following:

■ The University of California at Berkeley will create a prototype digital library focused on environmental data. The university will develop tools to enable untrained users to find information in other digital libraries worldwide.

■ The University of Michigan will conduct research in techniques needed to create large-scale multimedia digital libraries. A prototype will concentrate on earth and space sciences.

■ The University of California at Santa Barbara will develop a digital library of spatially indexed information such as maps, images and pictorial materials.

■ Stanford University will develop the enabling technologies for a single, integrated virtual library offering uniform access to geographically dispersed, heterogeneous information sources.

■ The University of Illinois at Urbana-Champaign will use a customized version of the Mosaic Internet browser, developed at the university's National Center for Supercomputing Applications, to enable tens of thousands of users to navigate the Internet's World-Wide Web for science and engineering information.

# Largest info highway display at home with Mickey

By Kim S. Nash

Apple Computer, Inc., Home Box Office, Oracle Corp. and several other computer and media firms unveiled at Walt Disney World last week what may be the largest working information superhighway display in the world.

Innovation, a display area at Disney's Epcot center devoted to futuristic multimedia technology, opened last month, but last week's event was the first major exhibition of sponsoring companies, a Disney spokesman said.

One sticking point to bringing these splashy applications to the public, however, is cost.

woman said.

The Weather Channel, Anne Klein and several other consumer products and service firms demonstrated interactive TV applications that let users order clothes, check ski conditions nationwide or make dinner reservations.

Apple set-top boxes were demonstrated running interactive TV pilots in London connected to Oracle Media Server software running atop massively parallel hardware from Ncube, which Oracle Chief Executive Officer Larry Ellison is a majority owner.

Interactive TV, in fact, could put multimedia on the map, according to Kathy Klotz, an analyst at Dataquest, Inc., a consulting firm in San Jose, Calif. Subscriptions to interactive TV are expected to increase 34 times next year, compared with this year, Dataquest said (see chart).

One sticking point to bringing these splashy applications to the general public, however, is cost. Set-top devices, which are likely to be the main path consumers take to cyberspace, must be affordable. "I'm talking the \$200 range or less," Klotz said. Prices now range from a few hun-

Look out, Super Mario

Video games are not the only TV-based multimedia applications anyone

	1993	1994*	1995*	1996*
Digital set-top boxes	\$24M	\$76M	\$345M	\$546M
Interactive TV subscriptions	\$1M	\$2M	\$60M	\$250M
*Projected				

Source: Dataquest, Inc., San Jose, Calif.

dred dollars to approximately \$3,000 for a prototype set-top from Silicon Graphics, Inc., he said.

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workstations and LANs just as if they were sitting in their offices. Even if their offices are just data sites located

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# Computer Industry

## PC software firms face tough challenges ahead

By William Brandel and Stuart A. Johnston

Leading PC software companies are reporting decent earnings for the last fiscal quarter. However, fretting analysts warn that Microsoft Corp., Lotus Development Corp. and Borland International, Inc. face significant hurdles during the next six months.

Last week, Lotus reported a third-quarter loss of \$66.4 million on declining revenue of \$235.2 million, down 60% and 2% respectively from the same period a year ago. Profit for the quarter last year was \$18.3 million on revenue of \$240 million.

The quarterly loss resulted from \$77 million in nonrecurring charges resulting from the recent acquisition of SoftSwitch, Inc. and Edg Research, Inc. and a \$9 million restructuring charge related to "pretty lousy" European business, according to Lotus President and Chief Executive Officer Jim Manzi.

The poor European business resulted in the elimination of 100 employees from the payroll. Before accounting for the charges, Lotus reported a profit of 15 cents per share.

Responding to the loss, UBS Securities, a Wall Street investment bank, cut its projections from \$1.80 to \$1.25 per share for Lotus' 1994 fiscal year, then lowered its 1995 fiscal year projections from \$2.40 to \$1.95 per share. A number of other firms—including Dean Witter Reynolds, Bear Stearns & Co. and Goldman, Sachs & Co.—cut projections by similar amounts.

### Notes sales down one-third

Analysts said that in particular, they were spooked by a slowdown in Lotus' communications business. Sales of Notes groupware have slowed, from 150,000 seats sold in the second quarter to 100,000 seats in the third, said Peter Rogers, a Bear Stearns analyst. But Manzi, speaking last week at the 1994 Forrester Technology Management Forum in Boston, said CC-Mail, Notes and SoftSwitch sales made up 53% of Lotus' business and are growing at an aggregate rate of 70% annually.

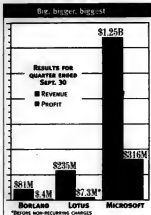
At the same time, Manzi characterized the desktop business as "pretty lousy," adding that "the desktop remains a tremendous battle." Indeed, analysts have expressed concern in recent weeks that Lotus is losing ground in the desktop ap-

plication market.

Meanwhile, Microsoft reported revenue of \$1.25 billion for the first quarter of its 1995 fiscal year up 27% from the same period a year ago. Profit jumped 32%, to \$316 million, from the first quarter in 1994. Analysts noted that Microsoft continues to gain market share on the desktop in Europe, mostly at Lotus' expense.

However, analysts expressed concern over the software giant's ability to continue its growth acceleration rate. They said Microsoft is not expected to garner sales from its ext-generation operating system, Windows 95, for at least two quarters.

As for Borland, Wall Street analysts said they were pleased with the small profit of \$356,000, or 1 cent per share.



that the company posted in its second fiscal quarter. Borland recorded a \$2.83 million profit for the same period a year ago. Increased new product revenue and tighter operating costs enabled the firm to report its first solid quarter in many analysts' said.

Analysts also said the news that Borland has filled a six-month vacancy for a chief financial officer may signal that it is in better financial condition than they originally feared.

While analysts note that Borland is showing signs of stability for the present, all those interviewed cautioned that the company will again face challenges during the next two quarters. Then, Borland will not benefit from new-issues revenue from dBase or Paradox.

CW senior editor Joseph Maglitta contributed to this report.

## Platinum comes clean

Vendor refocuses efforts following binge and crash

By Rosemary Calasano

The sag of Platinum Software Corp. with an all-too-familiar industry tale of a company that wanted too much and went after it too fast.

Trouble had been brewing long before Platinum went into its financial tailspin in April, company officials now say.

"The philosophy was spend to grow," said Carmelo Santoro, who became Platinum's chief executive officer in May. "And when we got finished, we would be able to compete with the industry giants. It didn't jibe with reality."

The high-flying client/server vendor had a laundry list of problems dating back to last spring, including a \$13 million loss on revenue of \$14 million for its third quarter and the restatement of \$15 million in revenue because of improperly recorded revenue. There was also a shareholder lawsuit, the rapid-fire departure of several top executives and an ongoing Securities and Exchange Commission investigation.

Since the April crash, Platinum brought in a new executive team to refocus the business on financial software. Santoro hired a new president, David Proctor, formerly a vice president at

IBM's Personal Software Products division. So far, the two have sold off several extraneous businesses, settled the shareholder lawsuit for \$17 million and brought in \$13 million in investment money.

### Too much, too soon

Platinum's initial success in the financial software business—with a user base of about 30,000 for its LAN-based software—made it

anxious to expand in providing a full suite of client/server applications.

So it went on a buying binge, picking up several tiny firms and in turn dropping its cash balance from \$67 million in the spring of 1993 to \$17 million in April 1994.

But the 1993 buying spree distracted Platinum from its flagship client/server product, which had shipped to a few hundred users. The firm promised it would deliver Version 1.5 last year. Santoro said it kept that promise but delivered bad software. "It was buggy, and we didn't even attempt to get data corruption bugs out," he said. "We shipped knowing some functions didn't work."

Platinum is now working with beta customers on Version 1.4, and early reports are favorable.

CEO Carmelo Santoro: If I walked, talked, moved or struggled, we bought it.

## Micron, Zeos plan to merge

By Jalkumar Vijayan

If you can't beat them, team up — and then beat them. At least that is what memory chip maker and system vendor Micron Technology, Inc. and struggling mail-order PC supplier Zeos International Ltd. hope they can do in the PC marketplace.

The two second-tier PC vendors last week said Micron will merge its PC business into Zeos in a deal estimated at \$400 million. The agreement will leave Micron holding 89% of Zeos' common stock, with the remaining 11% being held by current Zeos shareholders.

Analysts said the merger of the two publicly held companies would provide bulk and cost savings in an increasingly competitive and volatile market. For Micron, which last year earned about \$35 million of its \$400 million from direct PC sales, the deal with Zeos could give it more presence in the desktop and note-

book mail-order marketplace.

Analysts speculate that, for Zeos at least, a deal like this was inevitable. The company has been struggling to maintain market and mindshare in the mail-order sector and may have been seriously hurt by the ongoing price war. Earlier this year, Zeos tried to acquire mail-order rival CompUSA Add Corp., but talks broke down.

Ironically for Zeos, a one-time leader in the direct-marketing business along with Dell Computer Corp. and Gateway 2000, Inc., the merger comes at a time when the company has reported its second consecutive profitable quarter after a string of disappointments.

The company last week announced third-quarter profit of \$426,000 on sales of \$66.2 million. The same period last year saw a loss of \$2.3 million on sales of \$56 million. For the year ended July 2, Zeos had a loss of \$13.4 million on revenue of \$229.1 million.



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## Wait out Pentium

Intel wants you to stop buying PCs based on 486 chips right now and switch over to Pentium. I don't think that's such a good idea.

The PC chip giant has launched an aggressive ad campaign to convince buyers that the 486 is out of steam. The ads depict the 486 as a cat with seven of its nine lives exhausted. The Pentium is fine, in contrast, looks like it still has a lot of meows left.

The 486 as a dead cat is a powerful visual image, but it doesn't describe the situation very well. Intel's reasons for wanting you to move to Pentium have a lot more to do with Intel's self-interests than yours.

For one thing, Intel's profit margin on the Pentium is anywhere from two to four times as large as its profit margin on the 486. Intel is now building Pentium-based motherboards for some clone makers, potentially increasing its revenue from Pentium systems further. The fact that Intel has no Pentium clone competition — yet — allows it to keep margins high.

Yes, there are plenty of reasons why Intel wants you to switch to Pentium. Unfortunately, Pentium-optimized PCs still cost about twice as much as high-end 486s. But the Pentium chip doesn't deliver twice as much performance. In fact, the fastest 486s perform slightly better than the slowest Pentiums. PC options such as a PCI bus and fast hard disk will probably have a much more noticeable impact on the performance a user sees than a faster CPU.

Pentium, the argument goes, will be able to run Microsoft's Windows 95 better than a 486. That's probably true, but the 486 should also run Windows 95 pretty well. And besides, Windows 95 won't even be available for eight months. It will be at least a year before users start switching to Windows 95 in any volume. With PC product cycles at about six months, there will be at least one generation turn before then. Why invest in the future now when you can do so eight months from now and get a better deal? You're better off upgrading your current machine with a few bells and whistles and waiting out the market.

By the middle of next year, PC buyers will have significantly more options on the table. IBM, Apple and Motorola will have fleshed out their PowerPC Reference Platform strategy. Apple will have a new operating system and faster Power Macintoshes ready to roll, and IBM's OS/2 Warp campaign will be in full swing. Advanced Micro Devices will also be shipping or close to shipping a Pentium clone. That all adds up to more choice and lower prices. In the meantime, PC makers are planning aggressive holiday promotions that should cut the price of 486 systems even further.

It's long been a truism in the computer industry that those who wait will be rewarded with more power for less money. That's never been truer than it is today. Wait out this market if you can and enjoy the spoils of a lot of new competition around the middle of next year. In the meantime, that dead cat isn't such a bad deal after all.

*Paul Gillingham*  
Paul Gillingham, Editor  
Internet: pgill@cw.com



## Rethinking plans for licensing

About "BackOffice costs startle customers" [CW, Sept. 26]: You got that right! I think salespeople should concentrate on telling me about their products, not those of the competition. I would hope that they know their product, and so often they do not know what they are talking about concerning the other products.

This is a classic example. For five servers and 500 users, we would pay nothing for the servers and for only 500 users. Under Novell's Master License Agreement, we pay a fixed fee per workstation (node) and nothing per server. And our per-node pricing is significantly lower than what you report for Microsoft. I hope that you are wrong or that Microsoft changes its pricing very quickly if they don't, we will definitely have to rethink many of our plans.

Carl Hopkins  
Santa Barbara, Calif.

## PQS is looking up

"IBM reworks parallel mainframe strategy" [CW, Sept. 19] interprets positive statements I made about DB2 for MVS/ESA Version 4's increased functionality to reach the wrong conclusion that IBM will phase-out the S/390 Parallel Query Server (PQS).

IBM plans to enhance the S/390 PQS and evolve it to a stand-alone server in addition to today's offering. We also plan to provide upgrade paths for customers who install PQS for decision support and later decide they want to expand

its capabilities to run other workloads.

Our plan, as always, is to give our customers the flexibility to run their work loads where it makes sense to them.

W.J. Reedy  
Division director  
of market operations  
IBM  
Hopewell Junction, N.Y.

## Still mad

One reader hit the nail on the head when he wrote "I wish I had a nickel for every time I hit another Intel problem in Windows that Apple solved years ago..." [I "Mad about the Mac," CW, Sept. 12].

The advantages of the Macintosh remain staggering even today. That the Macintosh has lost momentum is due to good part to marketing mistakes and industry journals that follow rather than lead. Macintosh is not a "cult" or "religion" — it's a great platform for productivity.

Art Altman  
Palo Alto, Calif.

## Mainframe tools show potential

IBM's upcoming object-based client/server development tools for the mainframe will certainly present a challenge to the traditional corporate information systems shops ["Object standards accelerate," CW, Sept. 14]. However, corporate IS executives simply

cannot afford to ignore this opportunity to benefit from a proven object technology while saving their IS organizations from the many headaches of radical downsizing.

I disagree with the notion that IBM is good only at building structures and architectures. Its Application Services Manager, a set of application enabler objects for the mainframe, provides the services for on-line distributed transaction processing, database management, electronic file-folder management and an overlapping Windows user interface component for nonprogrammable workstations.

The Application Class Library Services, evolved from the Application Services Manager, is a foundation for developing industrial-strength business applications faster, cheaper and better. Together with the improvement of the mainframe's price/performance ratio, the object-based client/server development tools for the mainframe should have tremendous upside potential.

Donald Cheng  
Atlanta



Computerworld welcomes comments from its readers. Letters may be edited and should be addressed to BM Labs, Editor in Chief, Computerworld, P.O. Box 977, 375 Cochituate Road, Framingham, Mass. 01901. Fax number: (508) 875-8930. Internet: letters@cw.com. Please include an address and phone number for verification.



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# Desktop Computing

MICROSOFT'S OPERATING SYSTEM  
NO LONGER ON TOP, 42  
NEW PRODUCTS, 47

## Users see benefits to an Apple pairing

By Mark Halper

While Michael Spindler's hairdresser may be the only outsider who knows for sure whether Apple Computer, Inc. is up for sale, users were intrigued by the possible benefits that could trickle down to them from such a sale.

In a straw poll, users backed away from predicting the outcome of the current round of takeover rumors. But many said a pairing could bring Apple long-needed corporate marketing clout, which could then benefit users by virtue of a more pervasive and active market.

### Opening technical doors

What is more, a takeover or sizable investment by any of the rumored parties of interest—IBM, Motorola, Inc., AT&T Corp. and Novell, Inc.—would broaden Apple's technological base in areas such as networking, telecommunications, mobile communications and operating systems.

"I think it's great," said Bruce Gordon, a project director at Walt Disney Imagineering in Glendale, Calif., referring to the takeover possibility. "Apple has not properly marketed their advantage, and the backing of a major company would help them do that."

Rex Levin, a technical systems specialist at Kaiser Permanente Health Plan, Inc. in Pasadena, Calif., said Apple could benefit from having deeper pockets. Despite, or perhaps because of, its small size, Apple, page 42

## WP keeps Windows prods rolling

By William Brandel

Normally, when a company delivers a Version 5.2 of a product followed only a month later by a Version 6.1, it is a sign of bad marketing, bad execution or simply being out of touch with the user base. In the case of WordPerfect, Novell, Inc.'s applications group, there is a sensible method to these releases of its word processor.

Next month, WordPerfect is scheduled to begin shipping the latest upgrade to its flagship product. WordPerfect 6.1 for Windows includes all the new features the company has employed to jazz up the desktop applications in its PerfectOffice suite.

For example, WordPerfect 6.1 for Windows supports Lotus SmartSuite Corp.'s Object Linking and Embedding 2.0 functions, a common interface, PerfectFit Technology and PerfectScript, the suite's scripting language. To this end, the product not only represents a few small steps forward for the word processor, but also the beginning of one large step for the soon to be delivered suite.

Word processors are the hottest Windows desktop applications

Top Windows applications at U.S. businesses		
Market position	Application	Number of users
1	Microsoft Word	5.1M
2	WordPerfect	4M
3	Microsoft Excel	3.9M
4	Lotus 1-2-3	2.6M

Source: Computer Intelligence Int'l Corp., La Jolla, Calif.

"They've certainly made a quantum leap forward in the product's integration capabilities," said Jeffrey Tarter, editor of "Soft Letter," an industry newsletter in Watertown, Mass. "For the first time, these products of Borland's and WordPerfect are beginning to look like a real integrated suite."

Tarter noted that until the suite is actually delivered—it is expected sometime in November—it can have no impact on the competition. However, the product's features definitely help put it in the running for the long term, he said.

### Practical application

Meanwhile, in the stand-alone applications world, the delivery of a WordPerfect for Windows 5.2, the upgrade from WordPerfect for Windows 5.1, is a sensible offering for WordPerfect users, said Cecilia Hobbs, president of CK Enterprises, a desktop publishing consultancy in Houston.

"Version 5.2 only requires 4M bytes of memory and serves the user who only needs to do things like write letters or perform mail merges," Hobbs said.

WordPerfect, page 42

## IBM releases OS/2 Warp

Early users say a few bugs remain in code

By Ed Scannell

IBM finally unveiled the lighter, faster version of OS/2 with some desired flair on Broadway earlier this month, but whether the product's sales move at Warp speed remains to be seen.

IBM helped its cause by announcing that both Dell Computer Corp. and Toshiba America Information Systems, Inc. would bundle OS/2 Warp on some of their systems at customers' request (CW, Sept. 26). The IBM PC Co. also formally announced it would include the operating system with all of its systems (CW, Sept. 12).

### Selling predictions

Those deals emboldened IBM officials to predict that the company would sell at least 3 million and maybe even 5 million units of the product during this year.

"We expect to upgrade half of our installed base [of 6 million users] almost as quickly as we can turn out product. And with the technical improvements we have made to this thing, we'll pick up a lot of new customers," said Wally Casey,

marketing director at IBM's Personal Software Products group.

Most beta users seemed pleased with the product's improved performance and features set, most notably with the addition of a feature called LaunchPad, which makes it easier for users to call up frequently used applications or files.

"The Launchpad lets you archive the desktop and .INI files, and you get a lot more options, including a command line. I generally find it helps me work faster," said Marc Shifrin, a programmer at Leviton Manufacturing, Inc. in Little Neck, N.Y.

Just how bug-free the final code was that went to manufacturing last week remained a question, however. Several users and developers said they still had difficulty installing the fi-

nal version on some machines. They said the product needs another few weeks of testing.

"There are still bugs living in the frozen code. We couldn't get it to install on a pretty generic 386 PC clone with 3M bytes, said one technical senior analyst at a large East Coast bank who asked not to be named.

## Warp beta cleans up some old problems

By Ed Donabek

Although IBM is boasting about the Internet virtues of OS/2 V3, its latest desktop operating system unveiled Oct. 11, the product also provides user interface enhancements and lower system resource requirements than its predecessor.

In addition, some of the awkwardness of the system has been smoothed out. New settings called Archive and Desktop provide options for backing up the OS/2 initialization files, saving the initial desktop, reloading video drivers and copying to an OS/2 prompt. These features are users from time-consuming reinstallation procedures.

To find out how much has changed, we tested a beta version of the product, known as Warp, using a configuration that consumed 57M bytes of the hard drive. We set a 14M-byte swap file for Windows, and the OS/2 swapper used 8M bytes.

Tests of WordPerfect for Windows 6.0a,

Lotus Development Corp.'s 1-2-3 for Windows 5.0 and Software Publishing Corp.'s Harvard Graphics for Windows 3.0 found no problems. WordPerfect ran faster than it does on OS/2.1, but LapLink—a Windows utility that allows file transfers over cable or Novell, Inc. nodes—did not work.



Archive and Desktop settings in the latest release of OS/2 back up the operating system's initialization files

For this test drive, we installed OS/2 on an IBM PS/2 Model 56. This is a 50-MHz 80486 SLCC2 Micro Channel system, with 8M bytes of RAM and a 204M-byte hard drive. The hard drive was reformatted to

Warp, page 46



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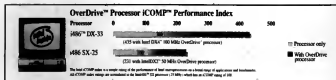
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Ben Rothke

# Microsoft's operating system no longer on top



I don't want to write a "Let's bash Microsoft" commentary. That point has been made, and enough trees have been slaughtered for that cause. Let's face it, most people who gang up on Microsoft are clearly jealous of Bill's billions.

What I want to examine in Microsoft's contribution (or lack of it) to the world of operating systems. Many of Microsoft's millionaires secured their fortunes from the success of MS-DOS. But it's 1994, and MS-DOS is outdated. Given that, how can we consider Microsoft a leader in operating system architecture and development?

While the masses may see Microsoft as an operating system leader, my colleague Joe (a superb Unix programmer) labels MS-DOS a boot sector virus. The MS-DOS 6.2 of 1994, which Microsoft continues to ship, has the same architecture and base functionality of the MS-DOS of 1987. I find it difficult to comprehend how Microsoft is perceived as a leader in operating systems and yet has the audacity to still ship an inferior product like MS-DOS.

## What they need

Microsoft is the only major software vendor that does not have an advanced desktop operating system available today. While Microsoft has done a lot of OS/2 bashing, it does not have a shipping product in the same ballpark. Windows 4.0—Windows 95—will not ship until mid-1995, years after everyone else delivered comparable products. Microsoft is last out of the gate.

What makes this even more of an embarrassment to Microsoft is that Linux 1.0 is shipping. Linux is a public domain Unix clone, an advanced operating system developed by Linus Torvalds and his user community. It is available free from various sites on the Internet. Torvalds is a college student in his mid-20s. What does he know

about advanced operating systems that Microsoft doesn't? His product is shipping while the wait for a stable version of Windows 95 may take us into late next year.

With MS-DOS, one hits the 640K-byte application memory limit immediately. MS-DOS may have been what spurred the creation of Prose—*for all the DOS programmers who went out of their minds trying to program the antiquated operating system. Compared to Unix, MS-DOS is also limited by an inability to multitask, lack of memory protection, an inability to enter a multitasker mode and lack of high-end applications that are accepted parts of the Sun/Unix world.*

Microsoft did manage to ship Windows NT 3.1 last year, but that was never designed to be a desktop system. Let's drop our notion of Microsoft as a technological leader. No self-respecting software company would have the gall to ship such technologically deficient products as MS-DOS and Windows 3.11 in 1994. If you're interested in playing Windows solitaire, then Microsoft's the answer. As for an advanced operating system, I can tell you who not to call.

Rothke is network manager at Track Data Corp., a New York-based market data vendor. He can be reached on CompuServe at 747 60.3325 or on the Internet at berth@id.com.

## Apple pairing

CONTINUED FROM PAGE 59

haps because of a recently improving profit picture. Levie said, "Apple is beginning to run tighter than they should."

That lack of spending, in turn, has led to a slippage in quality, as evidenced by what Levie described as flimsier parts and an increase in dead-on-arrival shipments. For instance, Apple switched suppliers on floppy drives, which led to a decline in quality, he said.

Users lined up to voice their personal favorites in what could be the end prove to be just another case of 1980s merger vapor.

"I hope AT&T gets it because AT&T is the company that has the infrastructure of communication, and that's the future," Gordon said.

For the same reason, Matt Ghourjian, national director of technology at Los Angeles law firm Howrey & Simon, voiced support for a Motorola/Apple combination.

"They are philosophically heading towards wireless, and that's the personal computer direction of the future," Ghourjian said. An acquisition by Motorola could proceed smoothly because they already supply Apple with microprocessors, and they have a long history of working cooperatively," he said.

## Apple partnerships

While pairing Apple with Motorola would make sense because of a long-standing relationship under which Motorola has supplied and developed Apple's microprocessors, it may be wise for the companies simply to remain partners rather than become "joined at the hip," remarked Peggy Poggio, deputy program leader at Lawrence Livermore National Laboratory in Livermore, Calif.

Critics of mergers and acquisitions noted that successful partnerships can deteriorate under more formally blended cultures and infrastructures such as those that emerge from takeovers.

Levie said an AT&T fit would make sense because it would combine Apple's ability to make user-friendly

operating systems with AT&T's mastery and ownership of code to the useful but arcane Unix operating system. That combination could yield a best-of-both-worlds operating system from a company with corporate clout, he noted.

"AT&T has had rotten luck in desktop PCs," Levie said. "They've always made grandma's machine one step behind. It would make life a lot easier if there was some kind of union between the people who own Unix and the people who actually write operating systems that the ordinary user can work with."

## Unlikely marriage

Meanwhile, as Apple and IBM struggle to establish a common specification for their competing PowerPC-based systems, some users saw a merger of those two as unlikely.

"It just seems IBM and Apple would be kind of strange bedfellows because they've been such strong competitors for a long time," Poggio observed.

Despite the speculation and the possible benefits of an acquisition to Apple, users were skeptical that one would actually take place. Takeover rumors have persisted and cropped up on an almost annual basis during the last decade, they noted.

"I've seen these rumors before. I don't put a lot of credence in them," said Phillip Corbary, network systems analyst at Englewood, Colo.-based US West, Inc.

Corbary said the timing of the rumors is strange because Apple appears to have recovered from the financial difficulties it suffered in recent years.

Last week, Apple said it expects to report that earnings for the quarter ended Sept. 30 rose about 30% more than analysts anticipated. The company will report earnings today.

"It's usually not a company that's back on the upswing that's ripe to be picked," Corbary said.

"I have a big investment in Apple technology, and I'd like to see it remain a viable alternative. So to the extent this makes that happen, I'm in favor of it," said Tim Haney, manager of customer service automated systems at Southern California Edison Co. in Rosemead, Calif. "But I'm not sure how this is different from the other rumors."

Perfect packages is an intelligent marketing manager for the company.

"The biggest potential upgrade market in the world is WordPerfect for DOS users," Tarter said.

"New sales in the desktop software market will be based on upgrading these users. It is very savvy of WordPerfect to provide as many bridges as possible for those users to upgrade to their present product line."

Current WordPerfect users can upgrade to WordPerfect 6.1 for Windows for \$99. The competitive upgrade for the product is \$129.

WordPerfect 5.2+ for Windows is available now, also with a list price of \$395. WordPerfect 5.2 for Windows users can upgrade to Version 5.2+ for \$24.95. The competitive upgrade is \$95.95.

## WordPerfect

CONTINUED FROM PAGE 59

comparison. WordPerfect 6.1 for Windows is a full-blown word processing package that requires 640 to 848 bytes of memory and more hard drive space, she said.

"WordPerfect 6.1 for Windows is not just a word processor. It's a desktop publishing system," Hobbs said. "It really encompasses all those components in the desktop publishing area like text art, the ability to edit graphics and to move those items around. It's not that different from Corel Draw."

Tarter said that delivering the two different Word-



WordPerfect 6.1 for Windows includes features such as support for OLE 2.0 functions and a common interface

Perfect packages is an intelligent marketing manager for the company.

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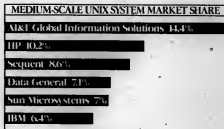
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\*TPC-A Benchmark Tests, July 1994, Transaction Processing Council.

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## Warp

CONTINUED FROM PAGE 39

Install PC-DOS 6.3 and Windows 3.11. To install Warp from a CD, we added an external Toshiba CD-ROM drive connected to a Future Domain SCSI controller.

After we completed the first phase of installation, we rebooted and found an error message stating that the file ASI.OSYS was missing. The installation was completed successfully after we found the file on the CD-ROM, copied it to the hard drive and rebooted.

### A new look

When we dual-booted back to OS/2, a white block appeared in the upper left corner. By pressing Alt-F1 while this block is on the screen, the user receives another screen that provides for recovery options.

Another change was that the Settings selections have been moved to the initial menu. Users no longer have to select the Open option.

We then looked at the new tab settings in the Desktop Settings: Archive and Desktop. The Archive tab provides a facility for backing up the OS/2 initialization files on boot.

If unchecked, the Desktop tab will start the same way every time OS/2 is re-start-

ed. This is similar to the "Save Settings On Exit" feature of Windows.

A copy of the initial desktop is saved during installation. The Archive tab, when selected, will make copies of the OS/2 initialization files at the time of the last three system reboots. If the Recovery Options are initialized during the boot process, Warp provides the ability to:

- Select from three backed-up desktops.
- Save the initial desktop.
- Reload the generic VGA video drivers.
- Escape to an OS/2 prompt.

With previous OS/2 versions, the user was required to make backup copies of the initialization files. Do you back up your DLI files? To recover the desktop, the user was required to boot with the Installation Disk, insert Diskette 1 and abort the installation process to get to an OS/2 prompt. Once that was done (assuming you had the disks), a utility program had to run to rebuild the initialization files.

At the bottom of Warp's screen is a new object called the LaunchPad. (It is called the Front Panel in the help system.) The LaunchPad is always open on the desktop and allows you to add any object to it.

We consistently opened two OS/2 Windows from the LaunchPad instead of one. This is because a single click is used to

run an application from the LaunchPad—everywhere else on the desktop uses a double-click.

We used the Add Programs object to add references for the Windows programs installed in DOS. All of the programs and groups were added without a problem. The Add Programs object replaces the Migrate feature in older versions of OS/2.

### Custom advantage

We tried to start WordPerfect for Windows and received an error saying that

Windows needed 386 Enhanced Mode to run this program. This is what makes OS/2 so useful—each Windows session can be customized to the application. (And if an application gets a Windows-generated General Protection Fault, only that session needs to be closed.) We changed the object settings to run in 386 Enhanced Mode.

Lotus 1-2-3 and Harvard Graphics worked without a hitch in 386 Enhanced Mode, too.

When we started LapLink for Windows, we received a message: "File is missing, please reinstall." So we started the WIN-OS/2 FullScreen session and reinstalled. The reinstallation went OK, and we restarted WIN-OS/2. We received the same message regarding a missing file,

which we could not locate. No further information was available on this problem at the time this article was written.

Now that we had WordPerfect, 1-2-3 and Harvard Graphics running, we wanted to see how large the OS/2 swap file can shrink and grow dynamically. With these three applications running in seamless Windows sessions, the swap file was 25M bytes. After we closed all of the applications, the swap file shrank to 10.

Looks like IBM has a winner here.

Dombek is information center manager at Trustmark Insurance Co. in Lake Forest, Ill.



## Brief

### Going home

The rooting of the home market by major desktop vendors continues. Compaq Computer Corp. recently announced a new line of its Presario consumer series. It features speakerphone, cable-ready television, CD-ROM sound system, fax machines and a computer at prices ranging from \$1,490 to \$1,999.

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# Mips targets NT, database

By Jankumar Vijayan

Corporate buyers could have a range of powerful chip options in the high-end workstation and application server marketplaces by next year.

The latest chip vendor to announce a high-performance chip is Mips Technologies, Inc., which last week unveiled its 64-bit R10000, 200-MHz RISC processor. The chip targets Microsoft Corp.'s Windows NT and database application server markets and is expected to ship in the first half of next year.

## About the chip

The chip has two 32-bit caches—one for instructions and the second for data—and a primary cache that is four times greater than that of its predecessor, the R4400. It also incorporates some mainframe-like architectural capabilities that optimize the chip for these markets, a company spokesman said.

Analysts briefed about the chip said they were impressed with its performance but remained skeptical about its po-

tential to widely penetrate the market.

"The processor offers very good performance, [but] Mips doesn't have the level of system vendors to attract serious application development" on Mips processor-based platforms, said Tom Kuchavy, president of Summit Strategies, Inc. in Boston.

"For a really strong chip like this to perform well in the market, it needs someone with market development potential" to push it along, Kuchavy said.

Vendors whose systems are based on Mips chips include Acer America, Inc., NEC Technologies, Inc., NetPower, Inc. and Siemens Nixdorf Informationssysteme AG.

The R10000, which will feature 5.6 million transistors, will join a growing number of RISC chips expected to ship around the same time next year.

Other vendors with plans to ship high-performance RISC chips next year include IBM and Motorola, Inc., with their 130-MHz PowerPC 620 processor; Hewlett-Packard Co., with its PA-RISC 8000 processor; and Digital Equipment Corp., with its recently announced 206-MHz Alpha 21164 chip.



**"For a really strong chip like this to perform well in the market, it needs someone with market development potential" to push it along.**  
—Tom Kuchavy  
Summit Strategies

Interleaf, Inc. has announced Interleaf 6 for Windows, a desktop publishing system.

According to the Waltham, Mass., firm, Interleaf 6 acts as a publishing engine by taking in documents from different applications, applying a constant format for uniformity and structuring the information into a document or set of documents.

The product includes workgroup capabilities, support for Microsoft Corp.'s Object Linking and Embedding, embedding of SQL queries in documents, a hypertext tool kit for creating hypertext links and an object-oriented development environment for building customized document applications.

Interleaf 6 can automatically lay out documents in real time across multiple files and desktops.

Interleaf 6 costs \$895; the Developer's Edition costs \$1,495.

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Vision's Edge, Inc. has announced Partial/Prints, Crops XT,

Navigator XT and JobSlog; QuarkXPress Xtension utilities.

According to the Tallahassee, Fla., company, Partial/Prints lets users specify an area of the page to be printed and Crops XT creates crop and registration marks around selected items. Navigator XT helps users move from place to place in a QuarkXPress document, and JobSlog helps track documents by placing document information on the printout.

Partial/Prints costs \$50; Crops XT costs \$40; Navigator XT costs \$65, and JobSlog costs \$60.

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Logitech, Inc. has announced MouseMan Sensa, an ergonomic mouse.

According to the Fremont, Calif., company, MouseMan Sensa features softened curves, indentations for the thumb and fingers and four different design patterns.

The product is plug-and-play ready and comes with MouseWare software that provides time-saving shortcuts for frequently used commands, according to Logitech.

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# Workgroup Computing

AST RELEASES SMP-  
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## Interest in RISC-based systems rises

By Ajikumar Vijayan

A growing number of users have begun looking at RISC-based client/server alternatives, hoping that those platforms can handle their speed and performance loads for the next few years, according to analysts.

For example, Restaurant Services, Inc., a Miami-based company that handles all supply-related issues for fast-food giant Burger King Corp., is seriously considering RISC-processor alternatives to connect its 300 suppliers and 22 distributors nationwide.

The number of users on the client side is not expected to dramatically increase during the next few years, said Michael Perrotti, LAN administrator at Restaurant Services. But increased traffic and applications running over the network "is going to max out the capacity" of the organization's Intel Corp.-based high-end servers, he said.

As an Intel user contemplating upizing some applications to more powerful symmetrical multiprocessors (SMP) client/server platforms, Perrotti said he has started looking at emerging RISC-processor alternatives with greater interest.

"SMP is a big factor for us, [and] we have standardized on Windows NT," Perrotti said. When wider operating system support — par-

RISC, page 51

## X/Open test suites advance

Verification suites allow vendors to comply with Unix standard

By Jean S. Bozman

A year after X/Open Co. announced its SPEC 1170 set of common application interfaces for Unix, it is preparing to release test suites that will allow vendors to comply with the Unix standard. Analysts said vendors are free to add bells and whistles on top of the common Unix code, but users said they anticipate easier porting of applications.

The SPEC 1170 standards were announced last fall as a common set of 1,170 application programming interfaces (API) that define the Unix operating system for all vendors (CW, Sept. 6, 1993). Now X/Open is preparing to ship three test suites that will verify X/Open's XPG4 base specification, the Unix extensions to XPG4 and a set of common commands for Unix, said Michael Lambert, X/Open's chief technical officer. X/Open will now refer to SPEC 1170 as a "single-Unix" specification.

Users should expect Unix-compliant products in the first half of next year, Lambert said, although shipments will vary by vendor. If all goes as scheduled, X/Open will ship its test suites for

about \$25,000 each in the first quarter of 1995. Vendors will then begin testing their operating systems for compliance and make changes as needed to qualify to use X/Open's Unix brand, he said. A fourth test suite to ensure compliance with a network protocol standard is also due early next year, said Robert Noyes, operations manager in X/Open's Menlo Park, Calif., office.

### Not as easy as you think

But some industry analysts said SPEC 1170 compatibility will not ensure easy portability from one Unix vendors' platform to another. This is because vendors will add special features on top of the SPEC 1170 APIs to attract more customers, they said.

"People will wake up and find that they have to run multiple flavors of Unix and that it's not a homogeneous environment," said Rob Tholemeier, a program director at Meta Group, Inc.'s Open Computing and Server Strategies group. "They should just learn how to deal with it."

But Michael Prince, director of information services at Burlington Coat Factory Warehouse Corp. in Burlington, N.J., said he looks forward to easier ports once SPEC 1170 systems are available. About 80% of Burlington Coat's applications are written in

### X/Open's SPEC 1170 test suites

Available: First quarter of 1995.

Price: \$25,000 per test suite, \$75,000 for a site license for all test suites, \$150,000 for a global license for all test suites.

#### Suite types:

• A verification suite called VSX4, which tests for base-level compliance with X/Open's XPG4 open systems standard.

• A verification test suite for Unix compatibility called VSU4.

• A commands verification suite called VSC4 to ensure consistent Unix commands and utilities for all Unix operating systems.

• A fourth verification suite called VST4 is expected to ensure conformity with X/Open's transport interface standard for network protocols.

house, he said, so information systems studies must port them between platforms rather than rely on vendors to port packaged applications. The company has hundreds of Sun Microsystems, Inc. Unix workstations and several large Sequent Computer Systems, Inc. Unix servers.

X/Open, page 51

### Executive information systems

## Domecq imports successful management tool

By Mitch Dettis

Some information systems managers pay lip service to the "know your business" mantra. But Bob Cooke spent a whole month elbow-to-elbow with field personnel to make sure a new strategic information system would meet their needs.

Cooke is IS director at Domecq Importers, Inc., a Greenwich, Conn.-based player in the fiercely competitive alcoholic beverages market. "By going out on the road with our salespeople, they saw my dedication to the project. I got to know the business very, very well... and there was not a lot of wasted time in the [systems] development process," Cooke said.

Under Cooke's direction, systems integrator Concept Information Systems, Inc. in Stamford, Conn., blended an array of client/server products to create an executive information system that turns internal and external data into a budgeting and competitor-analysis tool for management.

### How it works

The new infrastructure includes a Novell, Inc. LAN running on a Compaq Computer Corp. SystemPro server. The LAN is connected to a Hewlett-Packard Co. RISC server running financial software from Oracle Corp.

The key to the system is the use of Trintec, Inc.'s Forest & Trees front-end software to extract data every night from the Oracle database. The data is distributed via Lotus Development Corp.'s Notes to 45 desktop PC users and 25 remote laptop users, Cooke said.

Most important, the system has made dramatic changes in the way Domecq executives plot their business strategies. Previously, marketing budgets were an annual planning affair, and there was no system for making midcourse corrections.

The new system uses third-party market research on competing brands to see if the current marketing plan is working or needs adjustment on the fly, Cooke said. Marketing budgets are now set quarterly, rather than once a year and will be done monthly next year, he added.

"The executive information system sucks up all this information about competing brands, including newspaper, advertised retail prices and the number of

At a glance

**Domecq Importers, Inc.**  
Greenwich, Conn.

**Business:** Import, distribute and market of alcoholic beverages

**Revenue:** \$300 million

**Number of employees:** 30

**Well-known brand names:** Sausa tequila, Presidente Blanco, La Marie liqueur, Stangiac cognac

bottles on the shelves. Then it goes through a set of business rules to compare our sales to our goals, expenses and competitors," Cooke explained.

### Cut costs

By using Notes to link head-quarters and field managers for the quarterly budget process, "we don't need to fly the field managers to the home of 'flow' for every meeting, Cooke noted.

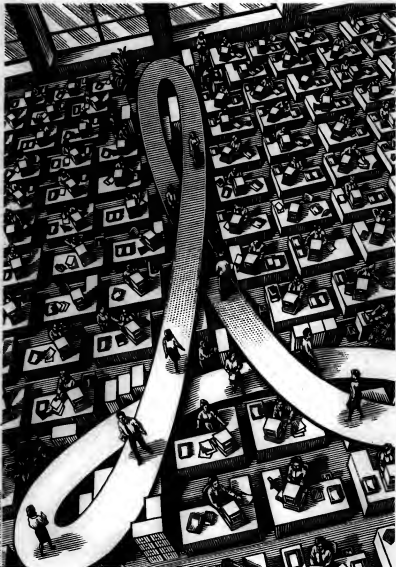
Furthermore, the new system has cut the time it takes to calculate end-of-month results by one-third, from 45 days to 15.

Cooke said he considered using larger integrators such as Andersen Consulting or Oracle's consulting arm, but said their proposals called for three- to five-year projects. That seemed to take the "rapid" out of rapid application development, he observed.

The IS director said the project has taken about two years and will come in under the original \$2 million budget.

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# AST offers SMP-enabled servers

By Jaikumar Vijayan

**In a flurry of announcements aimed at rejuvenating its aging corporate server line, AST Research, Inc. last week released a new line of SMP-enabled servers based on Intel Corp.'s i486 and Pentium processors.**

The symmetrical multiprocessing (SMP) Manhattan servers, which come on the heels of a low- and midrange server announcement from the company last month, will be available in both minitower and rack-mount form factors. They will also have optional features such as remote diagnostics and booting and four-hour on-site service.

The product launches come at a vital time for the company and could help AST regain some of the turf it recently began losing to competitors, analysts said.

"Other vendors were picking [AST] apart in the server market. I feel recently, they didn't have anything to really compete with," especially in the midrange server

space, said James Greene, an analyst at BIS Strategic Decisions in Norwell, Mass.

According to Greene, the new announcements from AST would help it close some of the gaps in its midrange offerings.

Topping out with a 100-MHz, dual-Pentium, processor-based system, the new Manhattan servers feature Peripheral Component Interconnect (PCI) and Extended Industry Standard Architecture (EISA) support, error-correcting code memory and support for redundant arrays of inexpensive disks. The company also announced a new Manhattan High-Rise server rack-mount form factor that can consolidate up to four servers and allows sharing of peripherals, monitor, keyboard and uninterrupted power supply. Both servers will be available in the first quarter of next year.

Additional features on the new high-end servers include a remote diagnostic and monitoring tool that lets users remotely log in to the server and carry out server management functions.

In the midrange, the company will this month start shipping its Pentium 60-MHz-based Manhattan G680 server with 16MB of RAM, a 256K-byte cache, PCEISA slots, a 10-yr "fast" SCSI hard drive and CD-ROM support. The servers also feature AST's Percept server management software.

## Users benefit

But despite the additional horsepower offered by such Pentium-based systems, some users were not ready to move to them—yet.

"If it's there already, that's fine, but the point is we don't need Pentium just yet," said Aljan Newthwaite, a LAN administrator at Burger King Corp. in Miami. The company, which only last year upgraded to i486-based systems after a hurricane damaged previous-generation 286 desktops, does not foresee the need to do so again in the near future. "I can see the need for Pentium systems for certain graphics applications or for the marketing and advertising departments, but for most business applications, 486s are just fine," Newthwaite said.

## RISC

CONTINUED FROM PAGE 49

ticularly Microsoft Corp.'s Windows NT—and a wider variety of application software become available on RISC platforms, he said he would not mind migrating to such platforms provided it is painless. "RISC clearly is a faster option," Perotti said.

"Intel is pretty much hitting the wall" and may have already pushed the performance envelope to near maximum with complex instruction set computing (CISC) architecture, said James Greene, an analyst at BIS Strategic Decisions in Norwell, Mass.

As RISC vendors such as the PowerPC trio—IBM, Motorola, Inc. and Apple Computer, Inc.—and Digital Equipment Corp., MIPS Technologies, Inc. and Hewlett-Packard Co. prepare to ship high-performance RISC processors in volume by mid-1995, operating systems such as Windows NT and

OS/2 could begin to drive the RISC market in a big way, Greene said.

"One of the big drivers out there is going to be Windows NT," Greene predicted. Features such as NT's hardware abstraction layer, which takes much of the pain out of migrating applications' across processor platforms, could tempt users to move away from Intel platforms to much faster RISC-based systems, he said.

## Exploring new worlds

Analysts say Intel may be hogging its bet somewhat, citing recent strategic tie-up with HP as an example of the chip leader's attempt to explore alternative processor technologies.

Interestingly, systems vendors may be doing the same thing.

Already, a number of leading desktop and server vendors, including Compaq Computer Corp., Digital, AST Research, Inc. and Zenith Data Systems, have indicated that they are experimenting with processor-independent designs. In the next few months, more ven-

dors are likely to offer a potpourri of RISC/CISC bridge offerings, such as swappable processor cards and bridge chips that allow the flexibility to move between processor classes. As more software support becomes available, the shift to RISC could speed up, analysts said.

"It all comes back to the kind of applications that I am going to be running and whether Windows NT support is available on the processor platform or not," said John Williams, assistant MIS manager at Priority Pharmacy in San Diego.

"We certainly can take advantage of faster [RISC] processors" than Intel processors if operating system support becomes available, Williams said.

"There are a lot of RISC-based processors out there, and if software vendors agree to support applications on them, that would be exactly the kind of platform we are looking for," Williams said. But until then, it is Intel platforms for him. "After all, I have a job to do," he said.

To flag code that varies with SPEC 1170 APIs, Lambert said X/Open is preparing a new "complementary test technology" that reports which sections of an application do not conform. The test kit is slated to ship by mid-1995, Lambert said. "The objective is to give developers a tool to enforce programming discipline," he said. "We have to make sure the use of these [extensions] is a conscious decision by the application developer."

## Document management

# OS/2-based system speeds claims process

By Thomas Hoffman

Until recently, dozens of American Re-Insurance Co. claims processing professionals were forced to process claims using a combination of paper files, calculators and mainframe query tools—a rather painstaking approach for a company that handles more than \$1 billion in insurance premiums each year. But thanks to a fully automated, OS/2-based claims processing system that the Princeton, N.J., insurer rolled out last month, the paper chase is now behind them.

In the past, the company's claims professionals almost completely depended on clerical staffers to locate claims files for them—not just paper files, but customer data that was housed in the company's IBM mainframe. To help streamline these processes, the insurer has connected more than 100 claims professionals in Chicago, San Francisco and other locations to its Princeton data center with OS/2-based workstations.

The company's re-engineering initiative is already paying off. Not only are claims professionals more productive, but the company has also cut its clerical processing staff in half, from 36 to 18 employees. "Although we did not approach this to reduce expenses, that has been a byproduct," said Judy DeMouth, senior vice president of the systems and services division. "Basically, there's no further need for our claims people to rely on support."

## Redirecting energies

Meanwhile, the remaining clerical processing staff can focus its energies on other areas, such as developing front-end PC applications for claims professionals.

American Re-Insurance also implemented IBM's DB2 database management system to give claims professionals access to data throughout the enterprise. The OS/2 workstations are connected to one another over Novell, Inc. NetWare LANs. The company's five field offices communicate with headquarters using WolfCell Communications, Inc. routers that have TCP/IP connections to the IBM mainframe.

Keith Sari, vice president of the claims department, said he believes the new systems will help his staff double its productivity. Still, those improvements will not result from technology alone. "We didn't just automate; we changed the entire workflow," Sari said of the three-year effort.

The firm does not plan to stop there. In addition to a homegrown OS/2-based imaging system the company is piloting at an insurance subsidiary and in its personnel and records division, the insurer is testing an IBM voice processing system that could eventually download customer conversations into electronic files. While the imaging system is slated for a 1995 rollout, the voice processing technologies have not yet matured for everyday use, DeMouth said.



Senior VP Judy DeMouth says the company has cut its clerical staff in half.

## X/Open

CONTINUED FROM PAGE 49

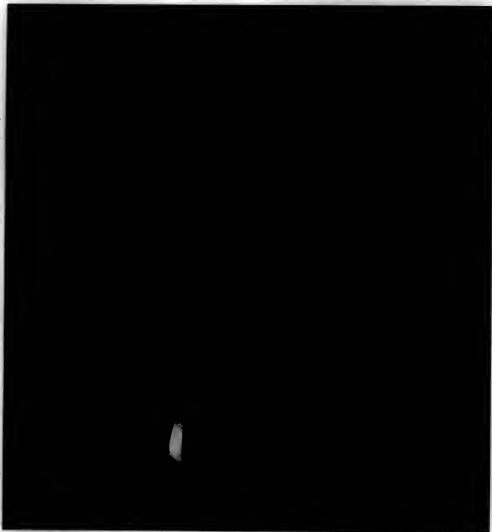
"I don't want to be locked into any platform," Prince said. "I want the flexibility to be able to buy any brand of hardware that has the functionality and price/performance I'm looking for. To the extent that there's a common underlying stan-

dard everyone can write to, as a least common denominator, that's a wonderful thing."

Lambert acknowledged that systems vendors may add extensions on top of the basic SPEC 1170 compatibility, making it more difficult to port from one platform to another. "We have leveled the playing field at one point in time," Lambert said. "Of course there's the risk that people will tilt it again."

While the test kit is slated to ship by mid-1995, Lambert said. "The objective is to give developers a tool to enforce programming discipline," he said. "We have to make sure the use of these [extensions] is a conscious decision by the application developer."

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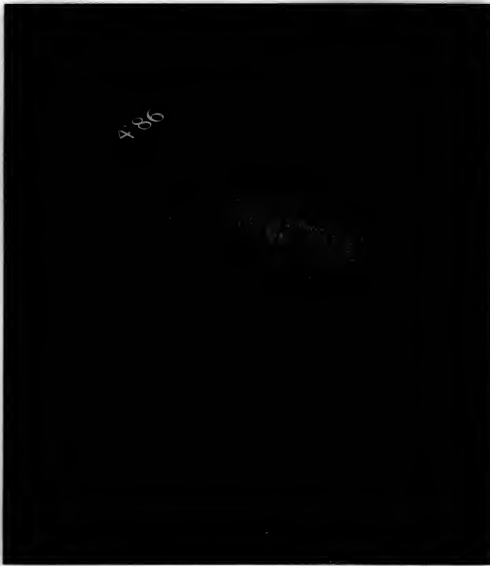
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# Vendors offer tools to link Windows NT to Unix

By Stuart J. Johnston

**As Microsoft Corp. Windows NT 3.5 ships to users, software vendors are readying tools to help bridge the gap to Unix.**

The products range from software that lets Unix and NT machines coexist and communicate over networks to tools that let developers move their Unix applications directly to NT without having to completely rewrite them.

Intergraph Corp. in Huntsville, Ala., announced it is shipping new versions of its PC-NFS and DiskShare products for NT.

PC-NFS Version 2.0 for NT, which was codeveloped with Sun Microsystems, Inc., costs \$400 for a single user and provides access from NT machines to Unix Network File System (NFS) servers. In addition to NT 3.5 compatibility, the update adds NT versions of the Telnet and File Transfer Protocol utilities. Five-user license packs cost \$1,949; a 100-user license costs \$25,000.

DiskShare, which costs \$500 for one user, provides access to NT file systems for Unix NFS users. A five-user license for DiskShare costs \$3,880, and a 100-user license costs \$50,000.

DiskShare "allowed us to move to [an] NT [network] and Windows clients and still allows the [users in the] Unix environment to access the PC-based files," said Dave McNeal, network administrator at Drawform, a specialized metal stamping company in Zealand, Mich.

Intergraph is also shipping Exalt, an X Window System server for NT that transparently integrates X Windows applications on the network with NT systems, the company said. The package, which costs \$500, enables an NT machine to emulate an X terminal.

## Portage, Nuteracker ease shift

This month, Consensus Corp. in Markham, Ontario, will ship its Portage 3.5 package, which was designed to help developers move Unix applications to NT. Portage provides a Unix System V Release 4 (SVR4) environment complete with all standard utilities, shells and other tools, running on supported Windows NT 3.5 platforms.

It also provides support for Berkeley Sockets, X Windows and Motif and Unix mail, including Simple Mail Transfer Protocol.

The basic Portage 3.5 package costs \$395, and the Portage software development kit costs \$495. Both packages cost \$695. The X server option costs \$395, and X/Motif client development kit costs \$495, according to the company.

DataFocus, Inc. in Fairfax, Va., will release this month its Nuteracker X/Software Development Kit (SDK), which was also designed to help developers migrate their code to NT, said Pat Hightie, the company's president.

DataFocus' product provides Unix tools, libraries and an X server, enabling developers to recompile and relink their

Unix programs to run under NT with a minimum of recoding. It supports the most widely used programming calls contained in the Unix SVR4, Berkeley, Posix, X and Motif program interfaces, according to the company. Nuteracker also includes the MKS Utilities from Mortice Kern Systems, Inc.

"It was worth the time it allowed me to

save" in porting a high-performance database from Unix to NT, said Thuan Pham, a member of the technical staff at Hewlett-Packard Laboratories in Palo Alto, Calif.

Although some hand-coding was still required because there are unique features in both operating systems that have to be coded differently, Thuan said

the project took him six weeks instead of three months.

Nuteracker X/SDK will have an introductory price of \$1,995 until the end of the year, after which it will cost \$2,995. A character-based version began shipping in May and has an introductory price of \$995, which will go up to \$1,995 next year, a company spokesman said.



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# Developers push PIMs into workgroups

By Tim Ouellette

Numerous personal information managers (PIM) will show up soon on a desktop near you, but some PIM developers have turned to the workgroup for their future.

CrossTies Software Corp. in Carrollton, Texas, has begun offering its PIM product for the workgroup environment.

CrossTies for Workgroups is essentially the firm's core PIM product that shares information using a user's electronic-mail system, customizable forms, fax management enhancements and additional PIM capabilities.

William Lovin, president of CrossTies, said the company is betting its future on the workgroup product. He noted that

stand-alone PIMs are now defined by low-cost, low-end address book products offered in software suites.

Russ Bey, an electronic data interchange coordinator at Alcon Laboratories, Inc. in Fort Worth, Texas, uses the CrossTies desktop product and plans to install the workgroup offering once it is released on Oct. 28. He said his depart-

ment used to have an unwieldy amount of data in filing cabinets that is now managed by E-mail and documents on a PC.

Bey said he was not looking for a large-scale product like Lotus Development Corp.'s Notes to organize his information.

"I didn't need all those other features," he said, noting that a stand-alone PIM was not the answer either. "I wanted something for the whole group compared to the enterprise level to organize infor-

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mation and put it on a shared disk. I was looking for an electronic filing cabinet."

Each object the user creates in CrossTies—a document, person's name, meeting, fax, project or even a workgroup—can be linked to related objects. Lovin said the product targets the 100- to 200-seat workgroup and does not require customized programming. In fact, CrossTies sees its product as a low-cost, easy-to-install alternative to Notes.

But some analysts see it differently. "It is not in the same class as an application development platform like Notes," said Geoffrey Beck, an analyst at Patricia Seybold Group in Boston. "I think [a workgroup PIM] is a new class of software. It is using object-oriented interaction that opens up possibilities for new styles of conversations that focus on actions and activities as opposed to just sharing information."

Another developer, Metz Software in Bellevue, Wash., added workgroup capabilities to its address and telephone manager product called Phones 5.50. It has a flexible searching procedure, compatibility with Microsoft Corp.'s Office and record, envelope and label printing.

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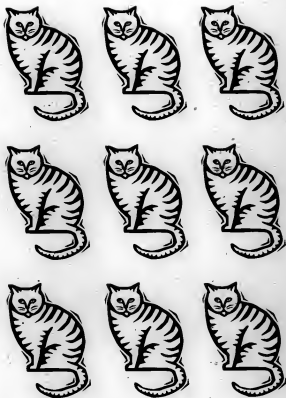
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# Enterprise Networking

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## Privacy protection gives wiretap bill double edge

By Mitch Betts  
WASHINGTON

The digital wiretapping bill that Congress passed earlier this month may look schizophrenic. The general thrust is to make police wiretaps easier, but a little-known provision in the bill actually increases privacy protection for wireless data transmissions.

The paradox is the result of compromises among the Federal Bureau of Investigation, the Electronic Frontier Foundation (EFF) and privacy advocates in Congress. President Clinton is expected to sign the "digital telephony" bill into law.

The provision covering radio-based data communication grew out of a realization that the Electronic Communications Privacy Act of 1986 failed to protect emerging technologies such as wireless modems, radio-based electronic mail and cellular data networks. The 1986 statute outlawed the unauthorized interception of wire-based digital traffic on commercial networks, but the law's drafters did not foresee to protect interest in wireless data networks. Section 203 of the new legislation fixes that by effectively covering all publicly available "electronic communication."

### Another standard

Higher privacy protection in the legislation requires police to get a court order—not just a subpoena—to obtain data about subscribers to on-line information services. Such material might include the information they have viewed and the E-mail addresses to which they have sent messages.

"The new legal protections for transactional information are critical in that they recognize that these records are extremely sensitive and deserve a high degree of protection from casual law-enforcement access," said Jerry Z. Berman, policy director at the EFF in Washington.

However, the wiretapping core of the bill is an anathema to privacy advocates. In its final form, it requires telecommunications carriers to alter their voice networking

technology so the FBI can conduct court-ordered wiretaps without being bumped by new digital services such as call-forwarding.

FBI Director Louis J. Freeh made passage of the bill his No. 1 anticrime priority, telling lawmakers that if their daughters or granddaughters were kidnapped, they would want the FBI to be able to find the perpetrator. "That's a very hard argument to counter," noted one opponent at a recent privacy conference.

"Freeh and Attorney General Janet Reno have done a masterful job of pushing this legislation," said Larry Clinton, executive director of government relations at the U.S. Telephone Association, which opposed the bill.

The measure calls for \$500 million in federal funding over four years to pay for the technical retrofit, but the industry is greatly concerned about who will pay the bill afterward.

### Opposition concerns

A statement by the Washington-based Electronic Privacy Information Center, which opposed the bill, noted "lingering questions concerning the need for such an unprecedented and far-reaching change in the law." The center added that the bill sets a bad precedent for the forthcoming National Information Infrastructure.

The FBI proposed a digital wiretap bill two years ago, but it would have required a redesign of all digital networks and equipment—including corporate networks, the Internet and on-line services—but legislators narrowed the scope to common carriers in the telecommunications industry.

"We have carved eyespore out of this legislation," Berman said, calling it a significant victory for the Internet, bulletin board services and information services such as Prodigy.

The question of why criminals wouldn't just use the Internet to evade the new wiretapping capability remains. "The answer the FBI gives is that there are a lot of stupid crooks out there," said Washington attorney Ronald L. Plesser.

## Novell prepares to expand NetWare global directory

### Key platforms still missing

By Elisabeth Horvitz

Novell, Inc.'s promised shipment in early December of NetWare 4.1 will be an important step, but by no means the final one, on the road to truly enterprise-wide NetWare, users and analysts said.

NetWare 4.1 promises the tools to ease migration from NetWare 3.x and to set up and maintain NetWare Directory Services (NDS). It is also supposed to deliver long-awaited Macintosh support for NDS and a messaging system that provides NDS support for messaging front ends that adhere to industry standards such as Vendor Independent Messaging and Common Message Calling. Novell spokesman Toby Corey said.

As a result, information systems managers will be able to use NDS as a single global directory to administer and provide user access across NetWare-based services and popular messaging front ends such as Microsoft Corp.'s Microsoft Mail and Lotus Development Corp.'s CC-Mail, Corey added.

However, Novell still must deliver NDS and NetWare 4.1 support for a number of key NetWare Loadable Modules (NLMs), including those for IBM's Systems Application Architecture (SAA) and for leading SQL databases, users said. "We are looking to purchase Oracle [OracleWare NLM] quickly, so it would be super if it recognized NDS," said Jim Branson, a network services supervisor at the Missouri Department of Health in Jefferson City.

"If I were Novell, I would put the pedal to the metal and deliver NDS in very conceivable form before Microsoft comes out with its directory," said Paul Callahan, a senior analyst at Forrester Research, Inc., a Cambridge, Mass., research firm.

Streamlining support for key network service NLMs, users are forced to log on twice—once to get into NDS and a second time to access the database or messaging or gateway service, Branson said. Moreover, IS staffers are forced to administer security separately for each NLM. With NDS support, IS would have a single structure for administration and log-ons.

"I want NetWare for SAA to be NDS compliant, not just compatible through bindery emulation," said Andy Klobas, manager for user computing at T.T. Fluid Technologies Corp. in Midland Park, N.J.

Some NLMs now support NetWare 4.1 and

**NDS news**  
**NOVELL PLANS TO RECOGNIZE NDS SUPPORT INTO SEVERAL OF ITS UPCOMING NETWARE INITIATIVES.**  
**THESE INCLUDE THE FOLLOWING:**  
▶ **Consult:** the Mosaic-based client for browsing through both Internet and NetWare-based services.  
▶ **The Netware Embedded Systems Technology,** which will enable NetWare-based connectivity to a variety of office equipment, interactive media and personal digital assistants.  
▶ **Services such as AT&T NetWare Connectivity Service,** which will enable businesses to provide NetWare-based information services to their customers over a public data network.  
▶ **NetWare Distributed Management Service,** which will eventually be able to collect information such as user log-on profiles from NDS.  
Novell would not give a time frame for the initiatives.

NDS in bindery mode, which enables users to access an NLM through the global directory but in a limited fashion, said David Parkes, a LAN administrator at Norgrain, a compressed-air equipment manufacturer in Avon, England. Further, bindery mode support prevents network administrators from being able to administer log-ons across multiple servers, he said.

Bindery-emulation mode allows clients to access NLMs via the global directory. However, that mode cannot take advantage of NDS' logical partitioning and replication, in which directory objects can be distributed across the corporation, Corey said. This means users will need to know the physical address of an NLM.

### Help on the way

The good news is NDS support for many key NLMs is in the works (see chart). Novell will provide NDS support for all of its own NLMs within 90 days after NetWare 4.1 ships, Corey said. NetWare for SAA Version 2.0, due out early next year, will have NDS support.

Third-party NLM support is also coming along for NDS, although shipment dates are not always available. But not all NLMs will support the full gamut of NDS features, including directory synchronization, security and replication, said David Cerkley, a vice president at Meta Group, Inc., a consultancy in Westport, Conn.

On the database NLM front, Sybase, Inc. plans to support NDS next year but is not sure at what level its SQL Server will be integrated with NDS, a Sybase spokesman said. Oracle has promised NDS support for OracleWare by the first quarter of next year. Gupta Corp. will probably have NDS support in the next release of SQLBase but gave no time frame for shipment. Six leading backup vendors, including Legato Systems, Inc., Cyberware Software, Inc. and Palintrend Corp., plan to ship NetWare 4.1 support in the first half of next year, Corey said.



FBI Director Louis J. Freeh made the bill his No. 1 priority

# United Nations launches worldwide network

Technology will promote global electronic trade

By Lynda Radosevich

International members of a United Nations-sponsored trade efficiency project are launching a global electronic trading network to entice small and medium-size companies to participate in worldwide commerce.

The Global Trade Point Network was unveiled at the World Symposium on Trade Efficiency held last week in Columbus, Ohio. The initiative aims to use computer and telecommunications technologies to help companies pick up international trade leads, navigate trade regulations, conduct business transactions and arrange for shipment and payments. It especially aims to open the developing countries to global markets.

Corporate sponsors include Digital Equipment Corp. and IBM.

"It really is an application that will take advantage of the international [electronic] superhighway," said Bryan Beske, an executive on loan from Digital to the Trade Point Network.

For instance, more than 50 trade points in sites from Columbus, Ohio, to Dar es Salaam, Tanzania, already use a pilot version of the network, primarily for messaging, according to a Trade Point spokesman.

The sites are connected in a variety of ways, including via AT&T Corp.'s EasyLink, General Electric Information Systems' messaging service and the later-

net. The U.S. point of entry is a server in Columbus that sits on the Internet's

World-Wide Web (see box).

Users get to the trade points electronically using client software appropriate to their network service. Or, in countries that do not have a communications infrastructure, users can travel to the trade point sites and use the computer and network links from there.

A couple of points, such as one in Bangkok, Thailand, are adopting electronic data interchange (EDI). Those sites are using the U.N.'s Edifact standard for EDI, Beske said.

## More services to come

In addition to messaging, the Trade Point Network plans to offer other services as it matures over the next few years. These include databases on trade leads and customs regulations, trade-related white and yellow pages to identify freight forwarders, insurance companies, financial services, EDI and on-line product catalogs.

According to Beske, several U.S. orga-

nizations have signed contracts with Digital to create Trade Point Network services.

• The U.S. Department of Commerce's

Although it is still under construction, the United Nations-sponsored Trade Point Network is available to companies today. To get to the North American Trade Point (NATP) home page on the World Wide Web, use Mosaic or Lynx to open URL and enter <http://popd.natp.affra.com/na.htm>. Right now the U.S. point of entry is available for free. During the next year, the NATP will begin charging an as-yet-undetermined subscription fee; one spokesman estimated that it would be \$1,000 per year. The NATP is in Columbus, Ohio, phone (614) 645-1700, fax (614) 645-1740 or AT&T EasyLink/thatadeptnet.



Foreign and Commercial service has committed to conduct a pilot of the Trade Point Network in its overseas offices. The system will link the National Trade Database, which lists import/export guides, foreign traders indices and so on, into the Trade Point Network.

• The Bankers Association of Foreign Trade helps businesses obtain letters of credit for use in countries where the local currency is not suitable for business transactions. It is setting up Trade Point databases that will match financial institutions with businesses to finance international deals.

• Ohio-based manufacturers such as Worthington Industries, which makes cylinders and other industrial equip-

ment, and Mills Pride, Inc., which makes furniture such as kitchen cabinets, are putting their product and service catalogs on the Trade Point Network.

The electronic product catalog is one of the more interesting and powerful tools for businesses, according to several Trade Point Network representatives.

Companies can take advantage of multimedia and hypertext on the Web to produce pictures and short animated demonstrations of the products as well as list the printed information. Doing so can save printing, transportation and storage costs associated with paper-based catalogs.

## Outstanding issues

Critics of the Trade Point Network effort point out that the legal enforceability of electronic trade documents, security and reliability issues must be addressed before global electronic trade can become widespread. Some speculated that the publicity in the U.S. surrounding the Trade Point Network is not much more than an attempt to promote Columbus as a communications hub.

Whether or not the Trade Point Network becomes widely used, companies such as IBM and Digital are forging ahead with plans to make electronic commerce more accessible for business users. For instance, both companies are handling the National Center for Super Applications' Mosaic into their business PCs. Mosaic is a Windows application for accessing the Web.

# Mosaic-based news feed service bows

By Ellis Bocker

People really don't want 50 more news channels on their TV. As Nicholas Negroponte, director and founder of the MIT Technology Media Laboratory in Cambridge, Mass., is fond of putting it: "People don't want more bits, they want the right bits."

Yet a deluge of information is the oft-cited complaint about on-line networks and news feeds.

Enter Individual, Inc., the Cambridge, Mass., firm that has offered tailored news feeds—via fax and electronic mail—to corporate subscribers since 1984.

Last week, Individual introduced a version of its product that leverages the growing adoption of the Internet among corporate accounts. The product, First for Mosaic, provides a daily feed across the Internet from Individual's 350 English-language news sources into a customer's World-Wide Web server. The incoming stories,

marked in the Hypertext Mark-Up Language (HTML), can then be viewed via Mosaic, a popular graphical "browser" of Web server resources.

Among the early test sites for the product was Sun Microsystems, Inc. in Mountain View, Calif., a longtime Individual subscriber.

"We started with individual guy a few years ago," said Lew Jamison, along with managing engineering, marketing and training at Sun, he runs the Sun library and information center.

The individual news feed is one of 15 home page "buttons" on Sun-Web, an internal Web server that went into operation in July.

Because the incoming text is marked in HTML, "there's an opportunity here for a company to link incoming news with existing company data resources," said Jerry Michalski, managing editor of "Release 1.0" in New York.

Indeed, Sun has developed a software program that takes the

news feed and creates profiles that map to different industry sectors or topics of interest to Sun employees. Individual tags stories by subject, date, source, brief and company keyword.

"We're trying to get a feel for what our profile should look like," noted Jamison, who said the existing 34 profiles may be too many.

## Prices vary

The pricing scheme for First for Mosaic is based on two parameters: the number of stories sent and the number of employees with access to them. "For example, a company receiving a database of 100 stories daily which is accessed by 100 readers would pay approximately \$50,000 for this subscription," said Paul Pinella, product manager for First for Mosaic.

For now, First for Mosaic does not provide images, audio or video content, although the Mosaic browser is capable of displaying such items. Company officials said they are waiting for their news providers to start offering such multimedia content.

## Briefs

### AT&T contract extended

Hospitality Franchise Systems, Inc. has extended its five-year long-distance contract with AT&T Corp. by one year. AT&T provides long-distance service to 4,000 Days Inn, Howard Johnson, Park Inn International, Ramada and Super 8 hotels. The contract is valued at \$4.46 million, the extension at \$4.6 million.

### TCP/IP—Macintosh style

The Wellbeing Group, Inc. in Palo Alto, Calif., announced a new generation of TCP/IP products for the Macintosh, undercoordinating the importance the protocol is gaining in the business world. Users will gain, among other features, drag-and-drop capabilities and remote access.

### Multimedia Mickey

US West has announced plans to build an interactive TV information system that will be installed in 12,000 hotel rooms in Orlando, Fla., next year. The CityKey project will provide tourists with information on attractions, shopping, sports and other events in the area. US West worked with Spectra Vision to build a similar system in San Francisco last year.

### On-line DG

Data General Corp. is offering services over the Internet, including a product catalog, product briefs, price quotations and support. The services are part of a planned Common Sense Computing campaign.



**THE PROMISE  
OF WINDOWS NT  
HAS FINALLY  
BEEN DELIVERED.**

## Hospital catches AT&T Wave

By Stephen P. Klett Jr.

As expected, AT&T Corp.'s Wireless Communications and Networking Division last week unveiled extensions to its WaveLAN wireless LAN products that enable building-wide roaming capabilities for mobile users (CW Oct. 10).

Called WaveAround, the technology consists of WavePoint, a device that provides wireless access to LANs; WaveLAN PCMCIA adapter cards for notebooks and laptops; and WaveMonitor, a radio

done at patients' bedside so nurses don't have to get in overtime," said Grace Curtis, project director for DoCoCart.

The hospital hopes to improve efficiency by allowing nurses to fill out patient charts on-line and access patient data such as prescriptions. This will also allow nurses to spend more time with patients, Curtis said.

"It's difficult when you're 18 months to two years ahead of the technology, but the wireless part of [DoCoCart] has proven so reliable that we are encouraged

that we can pull it all together," Curtis said.

WaveAround "is really very seamless and easy to install," Curtis said. "You basically just plug it in and boom, your LAN is instantly expanded. It's also proven very reliable. I can even log on from inside an elevator."

Grandview hopes to have all three floors in its main surgical building equipped with wireless capabilities by the end of the year, with between 20 to 30 DoCoCarts covering 200 patient beds.

Curtis said she would like to see more improvements on the software side rather than with the wireless technology. Specifically, she said, she would like to implement a more user-friendly graphical user interface. "Fevrite is good, but it simply doesn't have the pizzazz that Windows offers," Curtis said. She is considering bringing in Windows to run NEC Corp.'s Nice GUI.

A better GUI could also help win over those few nurses on staff who have not embraced the DoCoCart technology. "Overall, the nurses are excited about the technology, but I've got both jays and turtles," Curtis said. "A better GUI may help pick up those turtles."

WaveAround roaming software will ship with all WaveLAN and WavePoint products next month. WaveLAN and WavePoint are priced at \$695 and \$1,995, respectively.



Grandview Hospital uses AT&T's WaveAround to help nurses fill out patient charts on-line during their rounds.

frequency analyzer for installation and diagnostic applications.

WaveAround is specifically aimed at vertical industries such as retail, airlines and health care, which together represent a significant chunk of the growing mobile work force in the U.S. According to Datacom Research, there will be 46 million mobile workers in the U.S. by the year 2000.

### Desktop manner

Grandview Hospital and Medical Center in Dayton, Ohio, is using WaveAround to develop a mobile nursing cart application called DoCoCart, which is based on Grid Convertible portable computers from AST Research, Inc. in Irvine, Calif. The computers are housed on pushcarts and connect to the 400-bed hospital's LAN via the WaveLAN PCMCIA cards. The mobile machines are then linked to the hospital's mainframe via the WavePoint access device.

"Our goal is to get all of the charting

## Siren's lure is message environment for TCP/IP

Mail/fax packages target popular SMTP transport

By Lynda Radosovich

■ In an effort to tap the ever-growing popularity of TCP/IP as a networking protocol, Siren Software, Inc. has launched a family of packages for client/server messaging and faxing.

The Siren Messaging Environment runs on TCP/IP's Simple Mail Transport Protocol, the same protocol used in Internet messaging.

Siren is a 6-year-old, 50-person company purchased in February by Vicon, Inc., a privately held systems engineering company in Palo Alto, Calif. Siren has had its ups and downs: It was near bankruptcy at one point before the Vicon purchase, but it has recovered enough to persuade Unix users such as the Bank of Montreal, Motorola Computer Systems, Inc. and Fritz Companies, Inc. to commit a number of end users to its messaging and fax software.

"It's easy to install, and our people are running it on everything from Unix workstations to dumb terminals," said Ben

Shaevitz said that despite Siren's small size, he found its support to be better than Unix messaging rival Z-Code Software, which is now owned by Network Computing Devices, Inc.

### Siren's call

Siren's mail product, Siren Mail 2.0, supports the Open Software Foundation's Mail and character user interfaces now and will support Windows in December, according to Byron Jacobs, Siren's director of marketing. The client software connects to Unix servers, which store or route it out to wide-area

networks such as the Internet.

Supported services include the HP 9000 and IBM RS/6000. The software supports the Multipurpose Internet Mail Extensions standard for sending multimedia attachments such as text, graphics, bit maps, fonts and spreadsheets.

Siren's fax product, Siren Fax, lets end users create, send, receive and print faxes from their desktops. It is integrated with its sister mail product but can be used alone or with other applications, Jacobs said.

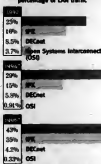
### Missed messages

Other Siren Messaging Environment features include the following:

- A shared address book for fax and electronic-mail addresses.
- Capabilities for users to sort, save and retrieve multimedia documents from a single "in box."
- User configuration tools for tweaking font and color preferences.

### Big boys

Transport protocol use as a percentage of LAN traffic



Average response of 254 interconnecting implementations. \*Estimated

Source: Research Group, Inc., Boston, Mass.

### Return to sender

However, Shaevitz added, there have been problems training people to address mail using the Internet's somewhat cryptic addressing format. To fix that, Fritz's IS department is investing in end-user training and tip sheets.

## Novell to support link routing protocol

By Sarah Mohan

Not quite ready to go the Internet Protocol route all the way, Novell, Inc. last week announced it will make wide-area networking a little easier for NetWare 3.x and 4.x users by supporting NetWare Link Services Protocol (NLSP).

NLSP is a link-state routing protocol. It looks at the entire path a packet should follow to get from one point to another instead of each hop along the way.

Users said one of the big advantages of NLSP is that it reduces broadcast traf-

fic on the network, which becomes a big issue when packets are routed over the wide area. This will greatly relieve congestion on their wide-area links, several users said.

### Less traffic

The University of Iowa at Ames was using a 56K bit/sec. frame-relay line to route wide-area traffic, according to Randy Dalhoff, assistant director of networks. The Service Advertising Protocol, a subset of Novell's IPX, created too much overhead because of its tendency

to broadcast the availability of its services over the network.

"It was impossible to do anything without NLSP," Dalhoff said. "NLSP cut down the traffic a lot. It made the network work."

Chris Weitz, manager of network operations at U.S. Bancorp in Portland, Ore., agreed. "Ideally, we would like to get rid of IPX and use IP. But until NetWare supports it, we can't," he said.

Additionally, Service Advertising Protocol is not easy to manage and maintain, Weitz said. "We would like to work

around that by using NLSP."

NLSP holds the entire routing table, instead of only the information about the next hop, allowing it to make more intelligent decisions about what route to take. In addition to Service Advertising Protocol, NLSP also replaces the Routing Information Protocol, the protocol that provided these functions for IPX users.

As an industry-accepted standard, NLSP has the backing of some of the large players in the router marketplace. Cisco Systems, Inc. will support NLSP in its next software release, due out early next year. 3Com Corp. and Wellfleet Communications, Inc. have also pledged support.



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# Large Systems

DCE HELPS NINE  
WEATHER DATA, 79  
NEW PRODUCTS, 72

## Multidimensional DB on comeback trail

By Rosemary Calasso

Multidimensional databases, which have been around for more than a decade, never really had a shot at replacing relational technology until recently.

But propelled by the client/server computing trend, they are now securing a serious slot alongside relational databases as an alternative end-user query environment. Their calling card is very fast and very complex queries, something relational technology cannot do easily.

"We didn't go out looking for a multidimensional database," said Kevin McCarthy, a systems consultant in the investment management division at Citicorp, in Philadelphia, which deployed the Dimensional Insight, Inc. tool set earlier this year. "We sort of came in through the back door. We looked for ways to do ad hoc queries, and this tool makes it easy."

### Jump on the bandwagon

Multidimensional databases have received plenty of hype this year as part of the on-line analytical processing (OLAP) trend. Old-time vendors such as Comshare, Inc. have retouted their multidimensional technology and associated decision-support systems for client/server platforms. Newer companies such as Arbor Software Corp. have also jumped into the game.

International Data Corp., a market re-

searcher in Framingham, Mass., estimated that the total server-based multidimensional database market last year generated about \$150 million. But recent activity suggests that this technology is catching on with users. For example, Arbor Software, which started shipping its Esabase Analysis Server in May 1992, now claims to have built up a customer base of 180. However, close to 90 of those customers signed up in the past quarter, the company said.

Multidimensional databases are fine-tuned to quickly deliver query responses that can include multiple elements or different cuts on data. That means they are no good for the high-volume, report-generation queries that relational technology can easily handle.

"There is a role for all of it," said Howard Dreesner, a research director at Gartner Group, Inc. in Stamford, Conn. "Multidimensional is not a replacement for relational and not for warehousing. It deals with aggregates, and it is useful for data complexity. It is not something you give to everyone. Many people would be happy with a simple reporting tool going against relational data."

Several users contacted recently said they selected a multidimensional database product because it was easier to use than many relational query tools and because it allowed them to deliver very complex query results quickly.

Robert Hansen, database administra-

tor at URM Stores, Inc., a member-owned grocery distribution business, said he reviewed nearly 40 query tools before he selected Accurate, a multidimensional database system from Keenan Technologies, a division of Keenan Systems Corp., this year.

"The way we look at our data, in terms of hierarchical relationships, fit perfectly with multidimensional," Hansen said.

### Cell structure

These databases depart from the relational model of rows and columns to store data. Instead, OLAP products hold data in cells that exist in multiple dimensions, or layers, of data. The databases typically rely on a hierarchical structure, with sets of data feeding into higher levels of summary data. This is a process called "rolling up." For example, a base level of data could be shampoo products, which roll up into health and beauty products, which in turn feed into consumer goods.

This mechanism allows a database designer to precalculate totals of data categories and in turn deliver a quick response time. When a user queries the database on shampoo products, he is actually retrieving a pre-existing total, not

initiating a series of searches, table joins and calculations as he would in the relational world.

Because the database allows multiple layers or dimensions, a user can easily add elements to his query and get a new

cut on the data. The shampoo products, for example, can be cross-tabbed with districts and then rolled up into regions. A user can then determine how shampoo products are performing by region, as well as compare them with other consumer goods product sales.

### Packaged deal

Multidimensional databases are shipped with their own tools to create front-end applications. Some ship with their own applications, such as Plot Software, Inc.'s sales analysis software, announced earlier this month. Others work with traditional executive information systems, decision-support systems or desktop spreadsheet packages.

data means possible performance or integrity problems.

"Sometimes relational isn't the easiest thing to report from," McCarthy said. "You want a report with nine different data items, and there's joining and linking among tables. And that is not something a user wants to get into at all."

### A tougher route

Users said they are often kitted together a multidimensional line of equipment with relational technology because there is nothing in relational that prevents such techniques as precalculations. But this still requires programming, and summaries can result in data duplication or denormalization. Denormalized data means possible performance or integrity problems.

## HP tracking service lets managers control far-flung assets

By Mark Halper

■ Claiming that complex and geographically dispersed information systems shops are prone to lose track of their belongings, Hewlett-Packard Co. has rolled out a service to help managers keep tabs.

IS operations can lose thousands or millions of dollars when assets fall into a "black hole" because the company has paid twice for the same software license or pays fees for hardware and software it no longer owns, said HP operations manager Mandeep Khersa.

At least one user predicted the market will be receptive to the HP Asset Management Service.

"I think there's definitely a need for that," said Steve Barrow, director of IS at Wall Street Deli, Inc., a Memphis-based delicatessen chain. "We try to keep track of things internally, and we still find stuff weekly." Barrow supports 150 locations from a central HP 9000 server, and he said he will look at the HP service.

Dale Gardner, a senior research analyst at Meta Group, Inc. in Westport, Conn., noted that asset management is a process that "traditionally has received a low priority in most organizations, but we think it's something that will grow substantially over the next few years."

HP is charging between \$3 and \$6 per asset per month for the service, which would typically last for a mini-

mum of one year, Khersa said. The company is also charging an upfront per-asset fee that varies with the complexity of the service it provides, he said.

John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo., said the HP service differs from others in that it counts inventory and manages assets. It also measures things such as depreciation and performance against service calls.

### Something for everyone

Unlike some other offerings, HP's service can manage mixed environments, Khersa said. It draws on data from information from Unix or PC environments into a Sybase, Inc. database residing on an HP 9000 in Sunnyvale, Calif., he said. Users access it through PCs or workstations and can use HP's OpenView management system as an interface.

He also noted that users can tap the Asset Management Service to help assure compliance with software licensing terms.

Barrow agreed that users need to improve compliance assurance, especially with industry groups such as the Software Publishers Association maintaining vigilance.

### Niche to fill

"There's a tremendous need for something like the Asset Management Service, with all of the licensing ramifications of piracy issues and people making unauthorized copies of programs," Barrow said.

He cited a general lack of tools available to IS shops for monitoring compliance, noting that Microsoft Corp.'s Hermes systems management product may help make some inroads.

Gardner predicted that HP may eventually sell the AssetView software it uses to perform the service, but Khersa said there are no plans to do so.

### Checklist

HP's Asset Management Service includes:

- ✓ List of assets
- ✓ Location of assets
- ✓ Names of users
- ✓ Utilization of assets
- ✓ Software licensing
- ✓ Connections to other systems
- ✓ Acquisition costs
- ✓ Maintenance requirements and support costs
- ✓ Hardware configuration
- ✓ Movement and changes of asset base

# DCE helps mine treasure trove of weather data, experiments

By Jean S. Bozman  
SOFTECH, CHIL

The National Center for Atmospheric Research (NCAR) is working on a software project that will forge a unified, user-friendly way for scientists to find and use data stored here.

Information systems developers at this federally funded scientific research facility were forced to find a home-grown interface to massive data stores, said Pete Peterson, deputy director at NCAR's scientific computing division.

"There's no commercial system that meets our needs yet," he said.

The facility houses more than 407 bytes of on-line data that holds the results of hundreds of scientific experiments and simulations of weather systems. That information is used by 1,000 NCAR personnel and 1,500 outside users.

## Simplified access

The new distributed system is based on the Open Software Foundation's (OSF) Distributed Computing Environment (DCE). The system will unify a collection of proprietary front-end software modules that interface with several types of supercomputers and disk devices — and even one IBM mainframe.

"DCE is making the connection between you on your workstation [and] the mass-storage system, which is in the machine room somewhere," said John Cyne, a software engineer in the DCE visualization group who is coordinating the project. "We have users spread out all over the world, and a lot of them leave their data right here." But nine different interfaces connect to NCAR's mass storage systems, complicating user interactions with the central computing systems, he said.

## Guidance system

Building on DCE's remote procedure calls, developers are creating DCE directories that know the location of all the target data used by scientific and university users. Unlike the point-to-point networking protocols used here, DCE technology will allow users to request data — and to be directed to that data — without knowing its exact location in the network. Information about data storage will be held in the DCE directories, users said.

Without DCE, NCAR would have to pick one system, transfer a remote procedure call, create its

own naming service for files and users — and build its own security system. DCE incorporates all those functions into a single software environment.

"We could have done the integration ourselves, but we've been directed to use off-the-shelf products where possible," said Craig Ruff, a software engineer in the distributed systems group who is working on the project. "And, we consider DCE to be an off-the-shelf product."

The project began in early 1993 when a committee was formed to study the scope of the development task. Design work began in late 1993, without using any off-the-shelf DCE tool kits because few were available.

A team of three staffers began writing C code using the 400-plus DCE system calls early this year. The target completion date is now June 1995. The aim is to build a DCE infrastructure, starting with mass storage.

"I would say we're pretty close to leading edge on a lot of this," said Phyllis Brander, manager of distributed services at NCAR's scientific computing division. "There are a lot of sites that are working with DCE. But we're working with early code and beta code from [various] vendors."

## Expansion possibilities

If DCE proves successful for the mass-storage retrieval system, it will be applied to other tasks such as output to videotape and film and the import and export of large data files.

"Just about all the services we offer here we're planning to do under DCE," Peterson said.

Custom code for the DCE project will be generated with a set of homegrown software tools, which package DCE procedure calls into neat bundles. There are still few off-the-shelf DCE tool kits today, but Cyne said he expects that to improve when DCE is accepted as a cross-platform industry standard. However, industry analysts said that while there are a lot of DCE pilot projects, only a handful of sites are using DCE production applications today.

The investment in time and effort for the project is expected to pay off, especially as major system vendors include DCE support in their core operating systems, Ruff said.

"We're looking at DCE as a core technology," he said. "The hope is that, two years from now, DCE will come up on every body's box."



Donna Williams

Jeff Furman and  
Albert Marotta

# Year 2000 denial

Many IS professionals sound like they are in a state of denial when asked what the integrity of their applications will be on Jan. 1, 2000. Since this is the most significant calendar change since the crusades, it seems only logical that people who make a living finding and fixing bugs might expect a glitch or two.

It's a new century, a new millennium and a leap year, all rolled into one. And there is that little problem of the two-digit year field in most mainframe languages. But instead of looking at this issue, many data processing people are coming up with such whimsies as "I'll be retired by then" or "I'll be on vacation that day."

Rather than just create bon mots and hope for a happy New Year, our shop has started testing our systems for the year 2000 using one of the date simulator products recently released on the market. We know of three such tools that allow batch or on-line jobs to run under user-supplied system dates.

Yes, there are bugs. Signaling to TSO/ISPF in the year 2000 (almsed), we very quickly found several major date-related problems. For instance, the year 2000 comes up as the year 1900, 2001 comes up as 1901, and so on, under the TSO Time command.

Another problem is that the ISPF date gets thrown off by one day as soon as Feb. 29, 2000 is simulated, apparently due to confusion over whether 2000 is a leap year. Feb. 29 gets changed to March 1, March 1 gets changed to

March 2, and so on, for the rest of the year 2000. Finally, 00/12/31 (Dec. 31) gets changed to 00/13/01 (the first day of the 13th month). The vendors are committed to fixing the various problems.

Bear in mind that we found all these bugs in system code to look at the process of logging on to look at our applications. It doesn't take Nostradamus to predict that many bugs will appear in applications that do sorting, comparisons and calculations using year 2000 dates.

So, shops should test their applications in advance. When dates are controlled by "parms," or date files, programs can be tested without a date simulator. As the desktop approaches, even more sophisticated products may become available that analyze and correct date-based bugs.

As you test turn-of-the-century bugs, expect that applications may need to be upgraded in several ways for the year 2000. Databases and programs may need their two-digit year fields expanded to four. Consider upgrading some applications now to languages, such as COBOL/80, that use a four-digit year. This will provide the correct century for the next 8,000 years.

But even a four-digit year does not guarantee accurate program logic. All date-based programs, mainframe or PC-based, remain guilty until proven innocent of century change bugs.

Furman is a product support manager and Marotta is a systems programmer at Pradential Securities, Inc. in New York.

## Briefs

### Disaster avoidance

EMC Corp. has introduced software that will enable users of its Symmetrix 5000 mainframe disk arrays to duplicate data on remote subsystems for disaster recovery purposes. IBM an-

nounced a similar capability earlier this year for its mainframe disk products. EMC will initially support distances of up to 90 km via Recon-compliant cabling but said longer wide-area network links should become possible next year. Its Symmetrix Remote Data Facility costs \$125,000 per disk array, the company said.

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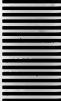
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Genesys Software Systems, Inc. has announced the Genesys Enterprise Series for Sybase, Inc.'s SQL Server-16, a client/server human resources, benefits and payroll application for open environments.

According to the Methuen, Mass., company, the Genesys Enterprise Series is based on a three-tiered client/server architecture and runs on Sun Microsystems, Inc.'s SPARC-based workstations.

The three-tiered architecture separates the front-end graphical user interface, the application logic and the database management system, providing users with scalability and flexibility.

Prices start at \$125,000.

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Texas Instruments, Inc. has announced that the Information Engineering Facility (IEF) for Client/Server Implementation Toolset and IEF for Client/Server Encyclopedia, modules for TI's integrated software development environment, are available on Tandem Computers, Inc.'s Integrity Unix platform.

According to the Dallas firm, IEF for Client/Server Implementation Toolset automates compiling, linking, binding and testing IEF-generated applications.

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► Texas Instruments  
(214) 575-6320

Executive Software, Inc. has announced Diskkeeper 7.0, an on-line disk defragmenter for Open VMS VAX and Alpha AXP.

According to the Glendale, Calif., company, Diskkeeper 7.0 consolidates fragmented files and frees space on the disk.

An automatic job creation option creates Diskkeeper jobs for every available disk on the system, tracks all disks as they go off-line and come on-line and maintains the latest disk configuration at all times. Enhanced log file options and output are also included.

Prices range from \$320 to \$13,200, depending on configuration.

► Executive Software  
(618) 647-3050

Baber Information Services, Inc. has introduced WinPage, a Windows-based

executive information system for IBM's AS/400.

According to the Irving, Texas, firm, WinPage provides icons that guide users through query building in Windows.

The Query module provides a Windows graphical query interface to the AS/400; the Charting module lets users present search results in two- or three-dimensional charts; and the Reporting module lets users create reports visually and features multiple-level sort/break

sections, report headers and footers, detail and conditional sections.

Prices start at \$695 per user.

► Baber Information Services  
(214) 650-0506

Canary Communications, Inc. has announced the IAS3500 Intelligent Disk Array, a redundant arrays of inexpensive disks (RAID) system.

According to the San Jose, Calif., company, the IAS3500 Intelligent Disk Array

supports RAID Levels 0, 1, 3, 4 and 5, provides multiple RAID levels on a single rank of drives and is operating system- and platform-independent.

The product's queuing and scheduling techniques prioritize the host requests to minimize head movement on all disk drives simultaneously.

The IAS3500 Intelligent Disk Array costs \$19,995.

► Canary Communications  
(408) 453-9901



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# Sybase/Novell deal one-ups Oracle

By Kim S. Nash

Sybase, Inc.'s recently announced pact with Novell, Inc. to bundle the Sybase SQL Server database with Novell's operating systems sounds like a me-too deal because it follows a similar venture between Oracle Corp. and Novell. But, observers said, Sybase goes Oracle one—maybe even two—better.

One item that sets SybaseWare apart from OracleWare is support. Sybase has signed up Hewlett-Packard Co. to provide first-line technical help for users who buy Sybase's workgroup-level databases, which include SybaseWare.

Further, Sybase has pledged to train NetWare and UnixWare resellers in the intricacies of its database. The goal is to give users one-stop shopping for database, operating system and technical support. Plus, Sybase plans to finance joint advertising and seminars with Novell.

These factors could mean better sales and aftermarket support for information systems folks who opt for SybaseWare over OracleWare, said Rich Edwards, an analyst at Robertson, Stephens & Co., a San Francisco brokerage.

SybaseWare "really has the potential to make a go of this bundling idea, more so than Oracle," Edwards said. Oracle's 18-month-old partnership with Novell got off

Bundle of joy	
Both Oracle and Sybase offer extras bundled with their databases and Novell's NetWare or UnixWare	
<b>OracleWare</b>	<b>SybaseWare</b>
• SQLNet networking tool	• Open Client interfaces and drivers
• Oracle Office E-mail and office automation tools	• SQL Server Monitor for Windows to tune databases
• Oracle Glue interface between database and host-end applications	• SQL Server Manager for Windows to manage the system
• Oracle Book	• Backup Server for parallel backup and recovery
<b>BASE PRICE:</b> \$3,995 for five users	<b>BASE PRICE:</b> \$995 for two users

to a rocky start, Oracle officials acknowledge [CW, Oct. 3]. Some members of Oracle's direct sales force did not take kindly to Novell resellers marketing Oracle products and tried to undercut the efforts of "outsiders," according to Tom Henderson, vice president of engineering at United, Inc. in Indianapolis.

The teamwork is getting better, but such problems

slowed market acceptance, Henderson said, echoing the sentiments of several recently interviewed OracleWare resellers.

Overall, Novell seems to stand more staunchly behind Sybase than Oracle, Edwards noted. Indeed, in announcing the Sybase partnership two weeks ago, Bob Frankenberg, Novell's president and chief executive officer, said, "Now resellers can respond to customer needs for high-end database solutions."

## Support makes a difference

Frankenberg pointed to Sybase's pledge to train Novell resellers as something that sets the partnership apart from Novell's handling deal with Oracle.

"We have an agreement with Oracle, but this announcement with Sybase is more strategic to our company," added Toby Corry, Novell's senior director of marketing for NetWare.

Still, some NetWare resellers that have already signed on to OracleWare are not likely to peddle SybaseWare instead of or even alongside the Oracle product.

"Oracle 7 is a Cadillac database," said Steve Salmon, vice president of engineering at Service Technology Micro Systems, Inc., a reseller in Sterling, Va.

"I don't think we'll pick up Sybase unless they can prove they're better than Oracle," Salmon said.

## IBM buys rights to OS/2 tools

By Ed Scannell

In an effort to spur some much-needed application development among corporate and third-party developers, IBM has acquired the exclusive marketing rights to One Up Corp.'s OS/2 migration tool set.

One Up's Source Migration Analysis Reporting Toolset (SMART) typically allows users to automate the conversion of up to 70% of their 16-bit Windows applications to 32-bit applications that run natively under the recently released Warp version of OS/2.

Users can convert most 16-bit applications in just a few days, according to Richard Davis, president of Dallas-based One Up. SMART can automatically convert up to 70% of an application to 32-bit code, he added.

### A new favorite

SMART essentially replaces Micrografx, Inc.'s Mirrars as IBM's recommended approach for migrating Windows applications to OS/2, executives from IBM and One Up said.

Micrografx spokespeople declined to comment on the IBM deal with One Up. OS/2 developers struggling to make a living during the past few years are understandably enthusiastic about the prospects of IBM more aggressively promoting a tool such as SMART.

"This can only be a good thing," said Randall Flint, president of Sun Disk Systems, Inc., a longtime OS/2 developer in

Seal Beach, Calif.

But some users wondered if IBM can establish SMART outside of its installed base. IBM has had many problems marketing OS/2 in the past, observers said.

"If they had this sort of tool a couple of years ago and gave it away to every Windows developer they could find, they could have generated some interest," said Bob Evans, senior technical consultant at Nevada Power & Light, Inc. "But now it is hard for me to see a lot of users drooling over something like this."

### Migration blueprint

SMART consists of an analysis and reporting tool as well as a source migration tool. The first measures the size of a conversion effort and provides users with a road map or very specific information about what code needs to be ported and how it should be done for the migration effort. Some of these migration efforts can be done in as little as one day, Davis explained.

IBM will distribute the analysis and reporting tool of SMART beginning sometime this quarter through its "Developer Connection for OS/2" program, a CD-ROM based newsletter.

The exclusive deal gives IBM distribution and licensing rights to the product through next year. IBM will have non-exclusive rights to the product after that.

## Sapiens bests IBM with its ObjectPool SOM tool

By Ed Scannell

Attempting to beat IBM to the punch, Sapiens International Corp. has delivered one of the first application development tools that works with IBM's System Object Model (SOM) under its mainframe-based MVS operating system.

Called ObjectPool, the product is designed to let corporate developers encapsulate mainframe data stored in applications such as DB2 and IMS. Users can then take this data, which is stored as intelligent objects, and use it as building blocks in client/server applications.

In this scenario, "applications for workgroups will be built with object-oriented languages, and the mainframe will be used as a powerful objects processing environment," said Peter Barber, a senior vice president of business development at Sapiens.

Some OS/2 customers said they are encouraged by tools such as these. "Now there are tools coming to market that solve our client/server problems," said Judi Krizan, senior systems programmer at Amerisure Insurance Co. in Southfield, Mich.

Amerisure is in the midst of creating a

mission-critical application for its commercial underwriting business that will make it easier for agents to access policy information from the mainframe. Programming tools such as those from Sapiens and IBM could hasten the development of more powerful applications that make communication between PCs and mainframes easier.

When used with Ico, Sapiens' development environment for Digital Equipment Corp.'s VAX and Unix platforms, ObjectPool allows developers to deploy applications that can freely access data across several database management systems located on local-area servers all the way up to mainframe servers.

ObjectPool is available now as a beta starter kit at the introductory price of \$37,500 for those developers who are part of Sapiens' partner program, with general availability expected in December. The SOM-enabled versions for Unix platforms are still in development and are not expected to be ready until sometime next year.

For its part, IBM is fighting back with a beta version of SOMObjects for MVS that allows corporate developers to create, access and manipulate objects across several platforms. However, the finished version of the tool will not be available until sometime in the first half of next year.

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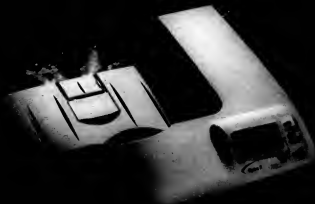
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Harold Lorin

## Pinning down objects



IBM's major announcements this week about SOM, C++ and object-oriented Cobol bring our attention once more to objects as a program development paradigm. We have had years of hope and hype, frankly optimistic projections about improvements in development and rates of investment in the technology.

The results have been less than the promise, and we have learned some hard lessons, as shown by the following:

- **Object technology is difficult to introduce, and its payoff is long term.** Payback comes from reuse based on understandable and durable infrastructures. Significant investments must be made, not only in developing skills, but in building or buying understandable and changeable programs. Quick C++ courses and crash programs do not provide the discipline or the understandability for reuse. There are many more C++ programs than true object-oriented programs on the planet. Object payback lines follow Lower CASE and Upper CASE curves. Payback is late and requires discipline, pa-

tience and great management skill.

- **The technology for achieving the promise of objects is far from mature.** Libraries are not sufficiently reusable because there are boundaries between languages and environments. Object Management Group standards have largely failed to provide vendor-interoperable distributed object systems and do not provide any vision of the development frameworks necessary for high payback. There are no scalable Upper CASE notations that permit objects to be the "construction" technology they promised to be.

- **Objects succeeded only in the presence of discipline that enforces best programming practices:** simple single-function modules, data encapsulation, information hiding. Such disciplines are enforced by C++ or any programming language. Though they have been around for decades, good techniques have made little intrusion into mainstream information technology practices. I use a range of results among my clients. Some have sent programmers to C++ school or tried an object project and have been disappointed enough in the results to abandon interest. Others have skunk work projects in noncritical applications. Others claim success. In one case where the company had a workbench with best programming practices at the start, objects increased productivity 30%.

IBM's announcement achieves some small advance in the integration of languages on a SOM basis across its own machine line. This is a step forward but far from what is needed. Although IBM is to be admired for becoming, after a late start, a player in object technology, incremental introduction of objects by extension of current programming languages is the wrong direction. Other vendors — Sun, AT&T, Hewlett-Packard, Digital, Apple and Microsoft — are also anxious to be seen as aggressive in objects, but most attention is focused on object technology as an end-user paradigm rather than

as a CASE tool. Major tool kit houses have often merely jury-rigged structural analysis or other older design tools into vague object terminology. As an industrial-strength software development technology in the silver bullet department, objects are already a major disappointment.

Perhaps the information technology culture is not capable of managing a paradigm shift. This does not keep architecture groups from proclaiming the miracles of objects in architecture and strategy documents while their companies lack any clue how to manage object technology into the mainstream. Those companies may have no plan or even a study group in place to find out how to do so.

### The greatest threat

The lack of strategic processes to establish objects in the mainstream culture is the greatest threat to the technology. There are no reliable metrics for the measurement of object development technology and few reports on results over the entire life of a software product. There are few staged technology transfer blueprints in which the promulgation of objects into the development community is coded, measured and clocked.

Success requires a realization that the major benefits of objects come from programming practices that have been available for decades, that big paybacks are later paybacks and that objects themselves have failed to deliver mainstream results since 1960. We must first be sure what the innovation is, and then we must realize establishing it is a major investment that requires intense management interest and skill.

Lorin is an author, principal consultant at the Mantovani Consultancy in New York and senior adjunct professor at Hofstra University.

The Runtime/Production module develops these applications across a variety of platforms.

ClientBuilder 4.0 costs \$12,795.

► **ClientSoft**  
(914) 631-5385

**Micro Focus, Inc.** has announced Micro Focus Cobol Toolbox 3.2 for Unix, tools for developing multiplatform client/server Cobol applications.

According to the Palo Alto, Calif., company, Micro Focus Cobol Toolbox 3.2 for Unix includes an interactive code debugger and an integrated set of programmer aids and utilities.

Features include support for the Distributed Computing Environment, System Five interaction Definition-compliant "termini" basis, enhanced Cobol access to C-based application programming interfaces and enhanced directive handling.

Micro Focus Cobol Toolbox 3.2 for Unix costs \$1,875.

► **Micro Focus**  
(415) 856-4181

**Mercury Interactive Corp.** has announced XRunner 3.0, an automated software testing tool for X Window System-based applications.

According to the Santa Clara, Calif., company, XRunner 3.0 can test both stand-alone applications or client/server applications in a single client configuration.

A visual testing feature lets developers create tests and verify applications, and a background testing feature lets devel-

opers execute tests and simultaneously run other graphical user interface applications on the same machine.

XRunner 3.0 costs \$4,000.  
► **Mercury Interactive**  
(408) 987-0100

**JYACC, Inc.** has announced JAM/Transaction Processing Interface (JAM/TPI) for Novell, Inc.'s Tuxedo, a development environment for distributed applications and application partitioning.

According to the New York firm, JAM/TPI for Tuxedo integrates the user interface and relational capabilities of the JAM environment with the distributed on-line transaction processing capabilities of Tuxedo.

The TPI client portion links the front-end capabilities of JAM with the client facilities of Tuxedo, while the TPI server links Tuxedo to the scripting language and database in Tuxedo of JAM.

Prices are \$600 for the TPI client and \$20,000 per server.

► **JYACC**  
(212) 267-7722

**Microvare Systems Corp.** has announced FastTrack, real-time cross development tools for Windows.

According to the Des Moines, Iowa, company, FastTrack integrates teamwork productivity tools that automate the creation, debugging, analysis and management of software development projects.

Three core modules include MakeFile Editor for creating and maintaining program make files for the C compiler; Fast-

Fix Debugger, a C source level debugger; and Target Monitor, which provides system-level debugging and application profiling capabilities.

FastTrack for Windows costs \$3,750.  
► **Microvare Systems**  
(516) 224-1829

**Integrated Computer Solutions, Inc.** (ICS) has announced the ICS EnhancementPak for the Open Software Foundation's OSF/Motif, a collection of widgets to simplify Motif applications.

According to the Cambridge, Mass., company, ICS EnhancementPak for OSF/Motif provides additional functionality to the basic objects that come with Motif.

Widgets include Button Box, Color Selector, Internationalized Extended List, Picman Editor, Porthole, Tree and Combination Box. The Picman widget lets users scroll in two dimensions, eliminating the need for two scroll bars.

The ICS EnhancementPak for OSF/Motif costs \$2,495.

► **Integrated Computer Solutions**  
(617) 631-1000

### Product short

**Commix SP, Inc.** has announced MultiMaster for OS/2, a multimedia database application development tool. The product lets users place links on images to call up sounds, videos or other images. MultiMaster also supports applications on OS/2, Windows and Macintosh environments. Cost: \$195. Commix SP, Vienna, Va. (703) 366-9668.

**Asymtetrix Corp.** has announced InfoModeler, a Windows-based visual relational database design tool.

According to the Bellevue, Wash., company, InfoModeler lets developers enter a conceptual view of the information system that reflects the data's requirements along with samples of the data.

The product then validates that the English facts and examples are correctly specified and automatically maps the facts into the relational database. Tools include a fact compiler, fact diagrammer, table browser, database generator and report generator.

Prices range from \$795 to \$1,495, depending on the platform.

► **Asymtetrix**  
(206) 462-0501

**ClientSoft, Inc.** has announced ClientBuilder 4.0, a Windows-based application development platform.

According to the Tarrytown, N.Y., company, ClientBuilder 4.0 lets users merge applications from multiple mainframe and midrange platforms simultaneously into a single graphical user interface. Users design the client portion of the application then migrate the legacy system to a SQL environment.

The Developer Edition module lets developers create the client portion of client/server applications and features event-driven coupling and automatic screen capture and screen recognition.





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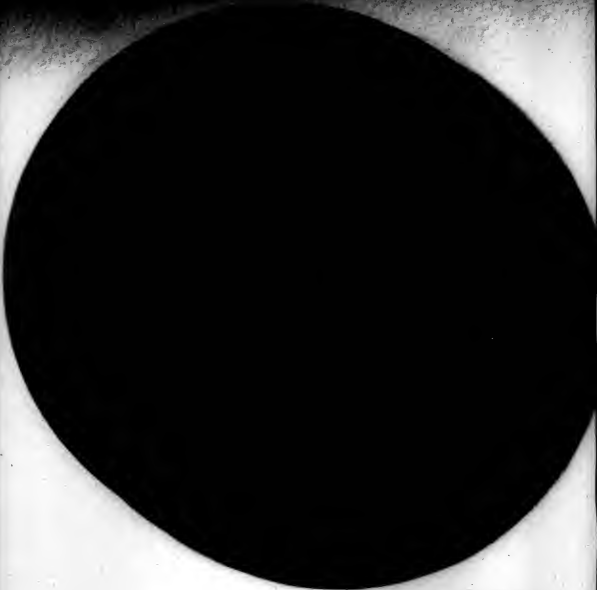
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# Sel

On the Internet

By  
Joseph  
Maglitta  
and  
Ellis  
Booker

# Beware

Nordstrom's Randy Rehn: Sidestepping the Internet's weaknesses

## Corporations looking to do business on the Internet must maneuver around pickpockets, dead ends, fuzzy laws and weak demand

**T**his holiday season cybershoppers around the world can order shirts, hosiery, kitchen utensils, bedding or any of the thousands of items from Nordstrom, Inc.'s flagship Seattle store via the Internet. But they can't pay for it.

Not directly, anyway. Instead, customers using the retailer's new Personal Touch America service, began last week, can place an order via electronic mail. Internet users then are instructed to call a toll-free number to provide credit and shipping information to a human "personal shopper" who fills the order. (Customers using MCI Mail or X.400-based messaging systems can send needed information online.)

Randy Rehn, originator and manager of PT America, which Nordstrom bills as the world's first shop-by-E-mail service, explains that the phone call is a small but necessary extra step. "You or I would not want our credit or personal information to be that available" over unsecured public networks, he says. "We think it's better to be safe."

Who can blame them? As the Internet braces for an explosion of commercial activity, the newest channel of electronic commerce remains fraught with obstacles for scrupulous business users, according to information systems and

business executives and industry analysts.

Besides major problems with industrial-strength security, complex new questions about advertising, copyrights, regulation, ease of use and pricing are complicating and slowing pioneering efforts to conduct wide-scale buying, selling and financial transactions on the Internet.

So numerous are the unresolved technological, legal and financial issues facing large corporations that David Taylor, vice president of electronic commerce at Gartner Group, Inc. in Stamford, Conn., concludes, "The costs and risks may outweigh the opportunities over the next couple of years."

Yet Taylor and others also say that electronic commerce offers opportunities for consumer-oriented or business-to-business sales that are too vast for large corporations to ignore.

"Whether a company is large or small, if it's not thinking along those lines, it will be at a competitive disadvantage over time," agrees Carvy Aszars, an International Data Corp. analyst in Framingham, Mass., and author of a new report titled, "U.S. Companies: Who's ready to use the information superhighway?"

Seller beware, page 80

## Seller beware

CONTINUED FROM PAGE 79

For IS, the message is clear: Whether you consider it the backbone of the "infopeway," the next big commercial pipeline or something in between, sooner than later you'll have to face the Internet as a buyer or seller.

In the past six months alone:  
 • The 15-month-old Internet Shopping Network was gobbled up by the \$1 billion House Shopping Network, Inc. In September (see related story page 86).

• The nation's first consortium promoting Internet-based commerce appeared in June. CommerceNet quickly swelled to more than 50 members, including Lockheed Corp., Bank of America, Citicorp, Xerox Corp., Apple Computer, Inc. and Allen-Bradley Co. Its goal: 1,000 member companies by 1995.

• The Big 3 on-line services — CompuServe, Prodigy and America Online — all announced expanded Internet support.

• Major computer vendors, including IBM, Apple, Sun Microsystems, Inc., AT&T Corp., Microsoft Corp. and Lotus Development Corp., have begun touting new tools and services aimed at helping large companies expand electronic commerce, much of it on the Internet.

### \$500 billion market

It's easy to see the appeal. Analysts say catalog sales and home shopping — a \$60 billion business in 1990 — could quadruple by decade's end. They say on-line shopping could explode into a \$5 billion sales channel in a few years. Another big driver: Selling goods electronically can be 40% to 30% cheaper than by conventional means.

"The No. 1 reason is the size of the audience — 20 [million] to 25 million users. That kind of potential you can't get on any other interactive or on-line environment," says Karen Burka, an on-line marketing analyst at Simba Information, Inc. in Wilson, Conn.

Business-to-business use appears even more promising. Some 2,000 companies connect to the Internet each month, according to Gartner Group. Market researcher Dataquest, Inc. in San Jose, Calif., says 60% of large companies and 30% of medium-size companies will use electronic commerce by the year 2000.

Even IS professionals, who will bear the technological burdens of electronic commerce, seem eager. A poll of technology managers released at the Information Superhighway Summit in San Jose last month found enthusiasm high.

Amidst the groundswell of interest, growing numbers of corporations, especially retailers and publishers, have begun to roll out systems in hopes of exploiting the Internet's rapidly developing commercial potential.

An estimated 400 commercial enterprises, ranging from mom-and-pop flower shops to AT&T, have created on-line advertisements called "pages," or order

**"Whose law applies to electronic commerce? State law? Which state? Country? If a product is offered for sale in Australia via server in Japan and the purchaser lives in Hungary, whose law applies?"**

— MIKE BARRY  
 Attorney  
 Internet Business Association,  
 a Washington trade association

forms, on the World-Wide Web, the Internet's newest information service.

While few companies are basing their entire electronic commerce strategy on the Internet, it is increasingly being evaluated as a viable adjunct to existing sales channels.

Savvy pioneers such as Nordstrom must balance prudence with promise, sidestepping current limitations in pursuit of future profits. Indeed, the retailer embodies the multi-pronged approach to electronic commerce that is likely to spread in the coming months.

All PT America orders are sent through MCI Mail to Nordstrom's 150,000-sq. ft. Seattle store where they are assembled and shipped for second-day delivery by Federal Express. For now, Rehn says store-and-forward E-mail shopping offers the safest, most economical way to extend the reach of Nordstrom's 78 stores to buyers worldwide.

"The E-mail community is very well interconnected," Rehn notes. "Any major system or messenger can communicate with any major system or messenger."

Rehn says the project was cheap and easy: User interfaces and database hooks for PT America took less than six months to develop using Microsoft's Windows, Access database and ConnectSoft links.

However, Nordstrom isn't stopping there:

The 14-state chain is also actively investigating interactive home shopping with US Avenue, a service from US West, Inc.'s new Interactive Video Enterprise, Inc. unit.

Analysts say it won't be long before Internet-based buying and selling grows beyond such intermediate steps as E-mail ordering.

### Get in gear

**Chief information officers can take several steps to get ready for the coming commercial Internet boom, according to Forrester Research.**

• **Appoint an electronic commerce evangelist.** Look for someone with strong imagination and new-tech savvy. Include an EDI specialist — but not to lead. Have the team develop a three- to five-year vision of how you will do business with partners and customers.

• **Get connected to the Internet** — now. Besides helping you keep abreast of new infrastructure developments, it will also feed your electronic commerce team's ideas engine.

• **Map out a transition plan.** Brainstorm and develop as many ideas as possible for a commercially safe Internet. Keep your EDI applications for 18 to 24 months, until next-generation Internet networks are ready for prime time. Resist building your own private network to reach outside corporate walls.

However, even fans of on-line commerce say the Internet must demonstrate far greater stability and security before it can be considered for anything beyond advertising, customer service or E-mail-based ordering.

Take Peapod Delivery Systems. For \$30 a order, the Evanston, Ill., firm lets shoppers order groceries from major chains such as Jewel Foods and Safeway using their home or office PC and modem.

The 4-year-old company is preparing to expand its service beyond metro Chicago and Silicon Valley into Boston and other markets nationwide. Peapod says it plans to offer subscribers the option of ordering via the Internet but only after questions about the network's reliability and governance become more clear.

As co-founders Andrew and Thomas Parkinson recently told subscribers: "We want to make sure that wherever you run into Peapod on the information highway, you can always be assured of a comfortable ride."

### Banking by wire

Citicorp shares the concern, albeit on a global scale. The New York-based financial giant already uses the Internet for various communication and information-related activities, says Dan Schuster, director of advanced technology.

A CommerceNet member and electronic commerce mover and shaker, Citicorp eventually hopes to do 50% of its banking by wire, Schuster says. But expanding electronic banking and check clearing to the Internet is unthinkable until ironclad security can be worked out. "We've got to get to the point where electronic commerce is [as safe as] exchanging goods over the counter," Schuster says.

Others are interested in the Internet to promote goods but not as a sales channel. At Joe Bower, the San Francisco peccomment that sells funky, colorful boxer shorts, Internet-based advertising is part of a "guerilla marketing."

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Joe Bower in San Francisco calls his World-Wide Web page the Under-Net. The boxer shorts company uses the Internet for "guerilla marketing," not for sales.

DIGITAL

## Update

OCTOBER 1994

## HIGHLIGHTS

In this issue, get the latest on special offers and product and service news along with details on Digital business solutions that are right for you.

**LeaseWorks' TPOptions**

Digital offers you a flexible and cost-effective pathway to new technology

**Success for Wawa Inc.**

The team of Digital and Distribution Architects International gives Wawa the winning edge

**Software Licensing****Is Easier Than Ever**

Introducing four new business practices that save you time and money

**StorageWorks Tape Library**

Get all the details on your best bet for big backup

**Save 30 Percent on****StorageWorks Subsystems**

Digital Authorized Distributors offer savings on StorageWorks products for VAX and Alpha AXP systems

**Raise System****Optimization Products**

Maximizing your investments in OpenVMS systems

## LeaseWorks and TPOptions Make Technology and Financing Work for You

LeaseWorks — a suite of flexible financing programs created by Digital Financial Services for today's technology — hands you unprecedented investment protection through a series of financial tools. One of these tools, TPOptions, helps businesses resolve issues around technological needs while also providing pathways for change. TPOptions offerings include:

**OpenTimetable Technology Refreshment Option**

If you need to keep up with the latest technological advances, there's no need to wait for the lease term on your current equipment to expire. The OpenTimetable Technology Refreshment Option enables you to upgrade or migrate to a new technology prior to the conclusion of your original lease commitment. You simply return the leased equipment and replace it with a specified amount of new equipment. The best news is that you renew the lease with the same original payment, term, and purchase options.

**New Capacity Option**

Perhaps you need more power. And you need it now. No need to sacrifice productivity because you don't have enough desktop systems or processing capacity. The New Capacity Option will finance the additional desktops or VAX and Alpha AXP processing capacity you need during the original lease term.

**Technology Exit Option**

You don't have to stay on the wrong technology path for three years just because you signed a 36-month lease. The Technology Exit Option is available after 12 months. With this option, you can exit from your lease after a year by returning the technology and paying a predetermined fee.

For more information on TPOptions or any LeaseWorks plan, call the LeaseWorks hotline at

**1-800-343-3451**

digital

## Winning Business Solutions

### Wawa Inc. Teams with DAI and Digital for Successful Rightsizing

**F**or convenience food stores in Pennsylvania, New Jersey, Connecticut, and Maryland, customers turn to Wawa Inc. The largest chain of convenience stores in the area, Wawa recently celebrated the 30th anniversary of its 500-plus store operation.

With its successful track record, Wawa knows that in the long run the best way to provide excellent customer service is through efficiencies that streamline overhead and reduce costs. So when the Pennsylvania-based company began looking for a way to implement an Electronic Consumer Response (ECR) system, it also began to re-evaluate its use of mainframe computing.

According to Joe Losak, Wawa's vice president of Information Systems, "The mainframe we had been using to handle our distribution systems was very expensive in terms of overhead and maintenance. It had already reached its

capacity for handling store processing. We realized, when we made the commitment to ECR, that further investments in developing on the mainframe would only add to our costs. That's when we began to look into rightsizing alternatives."

#### Searching for the Right Solution

Wawa began looking for a solution that would enable it to support store growth while migrating to open systems and full-scale ECR capabilities. ECR addresses the fundamental components of value- and supply-chain efficiencies for the food industry by automating the collection and flow of data between suppliers, distributors, and/or customers. "The efficiencies gained through ECR will help us reduce costs and wastes while increasing customer satisfaction," Losak explained.

A solution that matched Wawa's needs was found in the Master Distribution System (MDS) from Distribution

Architects International (DAI), a Digital software partner located in Tempe, Arizona. DAI/MDS provides an integrated distribution and logistics solution with an information architecture for real-time reporting, redundant systems, and migration to OpenVMS.

"When we found DAI/MDS, we knew it would support a phase-by-phase implementation of ECR — just what we were looking for," Losak said. Wawa also selected DAI for its expertise and vision in food distribution and technologies.

The DAI/MDS solution provides a rule-based client/server approach that enables Wawa to:

- Continuously improve its business processes
- Provide a solid foundation for strategic planning
- Offer a clear path for integrating new business enterprises and expansion
- Preserve and leverage related capital, process, and people investments

#### Cost Savings and Productivity Increase

By running DAI/MDS on an OpenVMS cluster, Wawa gains the ability to move to an open, standards-based operating system while also maintaining the kinds of security and reliability features that it appreciated in its mainframe environment. At the same time, the ability of OpenVMS to interface with other oper-

ating systems and networks enables Wawa to retain their legacy financial and payroll systems and use a data warehouse on the OpenVMS cluster for decision support.

Wawa has realized significant cost savings and an increase in productivity with their DAI/MDS and OpenVMS solution. Today the new system handles the ordering, shipping, and bill processing for all 516 stores in 6 hours a day — compared to the 14 hours required to process orders, warehouse documents, and invoices on the mainframe. This improvement enables the company to achieve a higher level of workforce efficiencies and increased availability of timely information.

As Losak described it, "With DAI's Master Distribution System and Digital's OpenVMS clustering, we now have the best of both worlds. Our cluster gives us nearly 100 percent uptime and the ability to integrate a data warehouse with our mainframe. At the same time, we have an open system providing a path to new applications that we need to bring a full ECR system online."

For information about DAI and its distribution solutions on Digital platforms, call Bruce Oliver at

**1-602-897-9576**

## Digital Software Licensing Just Got Easier

**Y**ou asked for it. A simpler way to acquire Digital software. One that increases your purchasing flexibility and decreases your cost. A process that takes much less time to figure out yet actually gives you more for your dollar. We answer you with Software License Simplification — business practices designed to lower the costs generated throughout the software life cycle.

#### Four Major Improvements Save You Time and Money

It has been said that approximately four percent of the cost of software ownership is spent on the actual transaction costs of license purchasing and administration. With Digital's Software License Simplification, the cost and complexity of reconfiguring and upgrading hardware are significantly reduced. How have we accomplished this? By putting into place four enhancements that play an important role in making Digital software your best choice. They are:

- Simplified Licensing Structure
- Simplified Pricing
- Simplified Upgrades and Migrations
- Simplified License Choices

Taken together, these initiatives respond more effectively to your changing business requirements and address your need for easier ways to do business with Digital.

#### Simplified Licensing Structure

Replacing the old multiple-tier pricing structure are three system classes — Workgroup, Departmental, and Enterprise — for VAX and Alpha AXP systems. These classes offer you a logical way to license your software across common computing environments. The major benefits for you are ease and flexibility. Licenses can now be moved across a broad range of products without additional fees or paperwork. Configuration decisions are easier. Solutions can be optimized to solve your business challenges, without software cost constraints. And, ultimately, your IS department can be more responsive to evolving business needs.

#### Simplified Pricing

It makes perfect business sense to price a single software product the same across all systems within a class. And that's just what we've done. Now a single license can be used across a host of systems within a class — giving you more flexibility to manage change, reducing your upgrade costs, and providing you with a wide range of compute performance under the same license.

#### Simplified Upgrades and Migrations

Our new upgrade and migration policy protects your investment in Digital software. If you choose to upgrade or migrate, you'll receive a credit equal to 75 percent of the price of the license being traded (up to a maximum of 75 percent of the price of the new license). You can then put this credit toward the purchase of a new license for the same product on a larger system class, a different hardware architecture, or operating system. This policy applies to VAX, Alpha AXP, and MIPS platforms.

#### Simplified License Choices

Talk about simple. Digital offers two license choices — license by system and license by user. Licenses based on system classes will replace the previous licenses based on multiple tiers and ClusterWide ratings.

What's more, the popular Concurrent Use License — Digital's primary user-based license — has been extended to more products, including compilers. The result? You will experience a reduction in incremental license fees and paperwork. That means your software budget will be easier to prepare and explain.

For information on Digital's Software License Simplification,

**CALL 1-800 DIGITAL**  
(1-800-344-4825) and reference JET.

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## RAID Array 210 Provides Automatic Failure Detection and Recovery

The paperless office may still be just a myth, but more and more businesses are relying on computers to store their critical organizational data. When information is not available due to disk failure or data corruption, both your business and your customers suffer.

Digital's StorageWorks RAID Array 210 prevents these crises with a hardware-based, high-availability storage array that offers automatic failure detection and recovery without operator intervention. Incorporating award-winning StorageWorks components in its design, the modular RAID Array 210 offers an open architecture, unmatched flexibility, and price/performance leadership that has made the StorageWorks product line one of the fastest growing in Digital's portfolio.

The StorageWorks RAID Array 210 — certified by the RAID Advisory Board — offers superior performance for disk operations plus one of the fastest rebuild times in the industry. You can hot swap drives while the server is running. What's more, your hot spares allow your data to start reconstructing immediately upon disk failure.

StorageWorks subsystems, including the RAID Array 210, are available for many Digital and non-Digital platforms and are integrated into the highly successful Digital 2100 Server, an Alpha AXP multi-processing server.

## StorageWorks TL820 Tape Library Is Your Best Bet for Big Backup

Information: it's the heart and soul of your business. As a result, there's nothing more aggravating — or more costly — than experiencing delays in accessing what you need. Perhaps your existing storage systems are approaching saturation today. Maybe your need for readily retrievable data has surpassed your ability to pay for it. Or, you've already pushed every storage solution on the market to the limit — a scenario that rings true for many industries, including finance, banking, insurance, or others that deal with large, sequential data files.

In these situations, how do you continue to increase productivity, keep costs down, and grow your bottom line? Is there a storage solution out there that is truly high performance, high capacity, and economically viable?

Digital has answers. We offer the StorageWorks TL820 Automated Tape Library — an automated backup and storage solution that runs circles around the competition. For starters, the TL820 library unit contains three TZ87 DLT drives and supports up to 264 car-

tridges, for a staggering storage capacity of 5.2 terabytes (TB) of data. Think of it as a file cabinet that can store 80 million pages. Need even more capacity? Simply add additional TL820 libraries (up to five total). The result is a seamless, virtual library via an innovative pass-through mechanism.

Since there is no manual intervention, the StorageWorks TL820 Tape Library lowers your cost of operation, reduces tape handling errors, and provides 24-hour access to your critical data. The ultimate benefit? You get the information you need instantly. No time wasted. No money lost.

### Digital Linear Tape (DLT) Technology is the Power Inside the TL820

The TL820 Tape Library is based on high-performance DLT technology — offering unsurpassed data integrity and



using data compression to provide a formatted capacity of 20 GB per tape cartridge. DLT drives and cartridges also last up to five times longer than other tape cartridges used in scan devices.

### Choose from a Host of Software Options

The TL820 Tape Library offers a wide array of software options, including DECIS and many third-party applications. DECIS provides robotics and media management and interfaces to SLS, Tapesys, and UIS; it is supported on OpenVMS VAX Versions 5.5-2, 6.0, 6.1 and OSF/1 AXP Versions 1.5 and 6.1. In distributed heterogeneous environments, POLYCENTER NetWorker Save and Restore V3.0 can manage the TL820 Library System — providing backup and restore services to more than 20 different UNIX systems, NetWare servers, and PCs.

For more information on the StorageWorks TL820 Tape Library or the StorageWorks RAID Array 210 Subsystem,

**CALL 1-800 DIGITAL**  
(1-800-344-4225) and reference #PL

## Save up to 30 Percent on StorageWorks Subsystems

Getting the best deal on Digital's StorageWorks products for VAX and Alpha AXP systems is now as easy as 1, 2, 3.

Simply buy a BA350-KB Pedestal, an SW500 with 5 shelves, or an SW900 with 8 shelves, and save up to 30 percent on a variety of subsystem components.

Here's a preview of the savings on Digital products offered by Avnet Computer, Pioneer, and Wyle.

### Save 10 percent on:

- HSD05
- RZ26-VA
- RZ26L-VA
- RZ28-VA
- RZ28B-VA
- TZ87-VA

### Save 20 percent on:

- HSJ40 Controllers

### Save 30 percent on:

- The entire BA350-KB Pedestal
- All the BA350-XX Shelves and the BA350-HA Power Supply

Call one of the three Digital Authorized Distributors listed here, and stock up on StorageWorks components while supplies last. But you better hurry. This offer ends November 30, 1994.

To take advantage of the savings on StorageWorks components, call

**1-800-44-AVNET**  
(Avnet Computer)

**1-800-227-1693**  
(Pioneer)

**1-800-332-6995**  
(Wyle)



## A Selection of OpenVMS Tools from Raxco Inc.

The following products are available today for standalone, networked, or clustered OpenVMS VAX and Alpha AXP systems.

### PerfectDisk

This product is an integrated disk optimizer that solves disk file fragmentation and random file placement problems.

### FragmentFighter

FragmentFighter is a proactive, controllable fragmentation limiter that optimizes disk space allocation during file creation and file extension.

### PerfectTune

This system tuner monitors activity and dynamically optimizes the setting of more than 36 systems parameters in response to workload changes.

### PerfectCache

PerfectCache is an automatic general data caching and virtual disk system that maximizes I/O throughput on standalone and clustered OpenVMS systems.

### RaxtMaster

This product is a total performance enhancement solution that integrates optimization for the major system components that affect performance, such as CPU, memory, I/O, and disks.

### RSU (RMS Restructuring Utility)

RSU is an automated online solution for internally fragmented and unoptimized RMS indexed files.

## Raxco Inc. Optimizes OpenVMS Investments

**A**re today's shrinking IS budgets leaving you with more to accomplish — and fewer resources to accomplish it with? Now, Digital partner Raxco Inc. can help you get more out of the OpenVMS systems you already have.

Raxco, an international company headquartered in Rockville, Maryland, offers a suite of performance enhancement tools for OpenVMS. With 270 people working out of 12 offices around the world, Raxco supplies system management solutions to more than 25,000 customers in every industry. And with very successful results.

### A Smooth Solution for Enterra Oil Field Rental

Enterra Oil Field Rental (EOFR), with more than 800 employees, is the largest division of the Enterra Oil Field Services and Equipment group. The company provides oil field drilling and production equipment around the world. Richard Arndt, director of MIS, serves finance, inventory, marketing, and international departments using a VAX 4000 Model 300 standalone system supporting 30 concurrent users.

EOFR's VAX 4000 system has 96 MB of memory and 4 GB of storage. Although a memory upgrade of 32 MB had improved performance, it was still not where MIS wanted it to be. "Our main problem was the financial system," IS interactive, and it runs a lot of reports, especially at month end," Arndt stated.

The MIS department used several Raxco products, including PerfectCache, RSU, and PerfectTune. "We set up PerfectCache first and then benchmarked interactive queries right away — without tuning the system," Arndt explained. Improvements were dramatic. A lookup that took 1,040 seconds dropped to 840 seconds. Another lookup that took 175 seconds dropped to 80 seconds.

Before benchmarking batch jobs, Arndt and his staff used RSU to restructure their RMS files. The immediate results were significant. A batch job that took 350 minutes of CPU time dropped to 87 minutes.

But perhaps the greatest reward for using Raxco tools came when EOFR implemented PerfectTune for dynamic tuning. "We've shortened the time it takes to run all of our month-end reports by a full 12 hours," Arndt said. "Our Raxco products have already paid for themselves."

### Courthouse Judges Raxco a Winning Tool for System Management

A single VAX 6000 system at the Orange County Courthouse in Florida provides ALL-IN-1 services for word processing and mail for the entire Ninth Judicial Circuit, the state attorney, and the public defender's office — about 600 people — sharing a county-wide network spread across six buildings. In addition to running ALL-IN-1, the VAX 6000 Model 630 runs applications for the state attorney's and public defender's offices based on the PROGRESS database management system. The system has 512 MB of memory and 14 GB of disk space.

"We had two problems: disk fragmentation and an I/O bottleneck," said Brett Arquette, IS department manager at the courthouse. "Between the two, the system was wasting badly needed power."

The IS Department brought in Raxco's PerfectCache, PerfectDisk, and FragmentFighter. "We dealt with the I/O problem first. PerfectCache creates a 'virtual disk' of any size you want. It's a disk that's actually a block of memory. We set up an 80,000-block virtual disk and moved the entire program library into it," Arquette explained. "Our I/O problem was corrected immediately. Now we can achieve as much as 800 sustained I/Os per second — that's a rate that would fry any actual disk drive."

**With Raxco system optimization products, Digital customers can extend OpenVMS investment protection even further — by making the most of the CPU, memory, disk, and I/O power they already own on their VAX or Alpha AXP system.**

Another feature of PerfectCache is its ability to turn caching on for all drives, and thus optimize leftover memory. "Even our drives that are not virtual drives 'think' they are doing 600 I/Os per second — compared with a previous peak of about 90 I/Os per second," Arquette said. To get the defragmentation problem under control, Arquette turned to PerfectDisk and FragmentFighter. "Every night PerfectDisk makes a single pass over the drive, reorganizes the files for maximum efficiency, and moves the file directories right under the read head of the drive," he explained.

"Then, during the day, FragmentFighter prevents fragmented files in the first place. At this point, we are down to maybe 1 to 2 percent fragmentation on the whole system — that's an extraordinarily low rate."

For details on Raxco system management products for your OpenVMS VAX or AXP environments, call Raxco at

**1-301-258-2620**



## Seller beware

CONTINUED FROM PAGE 50

ing" approach, marketing director Denise Slattery says.

Joe Boxer promotes it through "Under-Net," a flashy World-Wide Web page. It also prints its Internet address (joe-boxer@boxer.com) on company stationery and giveaways such as pencils and mouse pads. The company even answers its or its Internet messages from customers each day.

But the Internet is best used to steer buyers to Joe Boxer's catalog and stores, not to field on-line orders, Slattery says. "That's just not a distribution channel we want to get into."

The biggest problems with Internet commerce are the most obvious: How do you safely shuttle currency transfers, credit card numbers, bids and the like across an unregulated worldwide network? And will people buy?

### No shortage of chauffeurs

Several industry sectors are vying for the potentially profitable right of helping IS organizations ease onto the Infohubs.

• **CommerceNet.** Launched with \$12 million in federal and private funds, the organization is the first large-scale trial of internet-based electronic commerce. For \$15,000 a year, members can browse pages, place orders, coordinate production, schedule transportation and other business functions with members. They get industrial-strength NCSA Mosaic clients, World-Wide Web servers and all backbone and access equipment. Big lure: the promise of better security and easier navigation over the Internet.

• **The old guard:** EDI vendors, value-added network providers: E-mail such as EasyLink and MCI Mail; and on-line services including CompuServe, America On-line and Prodigy.

• **Web shops.** These mom-and-pop specialty consultancies handle everything from setting up pages on the World-Wide Web to promoting their clients' services on-line. Typical charge: a flat fee of \$25,000 a year.

• **Internet malls.** These new virtual shopping centers mimic their terrestrial counterparts: For as little as \$100, merchants rent a storefront (actually a Web page) and advertise text, image or video to lure passersby. In less than six months, Mecklermedia had lured some 60 companies to spend \$25,000 a year on its virtual storefront in Palo Alto, Calif. However, Mecklermedia last week announced it was cutting back on its service. Other new offerings include Apple's World and AT&T's eShop.

• **Major telecommunications giants.** Earlier this year, AT&T and Novell, Inc. announced an Internet alternative called NetWare Connect Services. The first NetWare-based application, Notes via public network, is due in the first half of next year.



Peapod Delivery Systems offers an interactive PC-based grocery shopping service. The Evanston, Ill., firm doesn't want a cranky Internet ruining the service for its 7,000 customers.

Since the infamous Morris worm invaded computers from New York to New Delhi five years ago, the line of protective firewalls, File Transfer Protocol and Telnet facilities have modestly improved the Internet's resistance to hackers, viruses and other threats.

But as U.S. Secretary of Commerce Ronald H. Brown told the National Information Infrastructure Task Force last month, there's a long way to go before consumers will feel comfortable zipping Visa numbers across such notoriously leaky pipes [CW, Sept. 19].

Supporters say such concerns are legitimate but exaggerated. "The same people [who worry about Internet security] feel comfortable giving out their credit card to someone on the phone," notes Ron Linehan, vice president of Electric Press. The 9-month-old Reston, Va., consultancy is one of hundreds of new "Web shops" that help companies advertise and field orders over the Internet. "The fear is out of hand," he says.

Linehan says his firm minimizes risk for clients by promptly forwarding credit card numbers to fulfillment houses.

### Fears overblown?

At the Dealer Internet Services Corp., a year-old business that bills itself as the first auto dealership on the Internet, president Marty Rood says he believes Internet security is improving.

"The service has helped sell nine cars so far, Rood says. "We're very enthusiastic about selling used cars, parts and extended warranties." Security will be ensured by Visa encryption and new security features found in Spy, Inc.'s so-called Enhanced Mosaic.

Many companies are working around the issue the way Nord-

strom is -- by issuing proxy credit cards or passwords via toll-free numbers. Lens Express, Nordic Track and Downtown Anywhere, which bills itself as the first virtual shopping mall on the World-Wide Web, employ this approach.

The Electronic Newsstand, Inc. accepts Internet orders for magazine subscriptions to *The Economist*, the *New Yorker*, the *New Republic* and 80 other publications via Telnet "order door." The electronic form asks for name, address and other information, explains Jeff Dearth, Electronic Newsstand founder and president of the *New Republic* magazine.

How well do these workarounds work? Just fine, says Randy Adams, founder and chief executive officer of the Internet Shopping Network. "We've experienced less in the way of fraud than conventional shopping," Adams says of the current system. "Our return rate is below 5%, which is really unusual."

Even if technology roadblocks can be overcome, on-line shopping ranks behind only home banking as the most consistently disappointing computer application. Despite years of hype, buying and selling via computer remains "a freak show," as one consultant put it.

Only about \$100 million to \$200 million worth of goods were sold on-line in 1993, mostly computers and electronics products. Analysts say that if standard Internet interfaces, billing software and index and search mechanisms are the biggest technical culprits. Another obstacle: fuzzy laws.

"If a product is offered for sale in Australia via server in Japan and the purchaser lives in Hungary, whose law applies?" asks MIKE Barry, an attorney for the Internet Business Association, a Washington-based trade association.

Companies involved in Internet selling also face confusing choices about a seemingly simple question: How do we hook up to do on-line commerce?

### Getting started

Analysts say large companies with IT service and Unix expertise should have no problem creating a World-Wide Web page. Gartner Group estimates it can cost as little as \$75,000

to establish an Internet shopping service (see chart page 56). Outsourcing is also relatively cheap. Sprint's new Global Commerce Link, for example, costs less than \$4,000 a month, excluding local access costs.

Simpler systems can be far less expensive. At Pizza Hut, Inc., MIS manager John Payne says whipling up the world's first Internet pizza ordering system took only a few weeks of part-time, after-hours work. The \$5 billion chain, based in Wichita, Kan., drew worldwide publicity in August at first announcing a service that lets Silicon Valley users order pizza via the Internet.

Payne says The Santa Cruz Operation, a leading Unix vendor, **Seller beware, page 67**

"A great deal of worry about security is exaggerated. The same people feel comfortable giving out their credit card to someone on the phone. The fear is out of hand."

— RON LINEHAN  
Vice president  
Electric Press, an Internet  
consultancy in Reston, Va.

No long lines yet

Internet-based shopping has a long way to go before it's a killer application. An informal *Economist* magazine poll last month found that about 150 people a day browsed the Internet mall. The 240 participating merchants averaged a total of one sale a day. New York-based Link Resources says the 4 million subscribers to commercial services such as CompuServe speed only about 15 a year shopping by computer.

## Seller beware

CONTINUED FROM PAGE 85

helped set up a World-Wide Web server using a Intel Corp. 486-based server, a couple of borrowed modems, a Mosaic interface and a firewall to protect it from the corporate network.

Setup was a snap because the new service sits atop an existing PC and LAN used in all 2,000 domestic Pizza Hut outlets, Payne says. "It was easy because we had the building blocks already in place. If you don't have the infrastructure, you're going to have to sell the idea to somebody."

Pizza Hut admits the service is little more than a novelty; only two to 10 cyberpizzas are sold each week. But Payne says more stores can be added quickly if the company decides to expand after the 90-day California trial.

But more complicated commerce, such as ordering merchandise from inventory and using charge cards, quickly gets confusing. Analysts

### The first step is the biggest

Most of the cost and headaches from developing an electronic marketing channel occur in the first applications and involve several development steps. Adding additional electronic channels, such as another on-line service or CD-ROM catalog, costs far less.

Start-up cost: \$75,000 - \$800,000

#### Initial development steps:

- Set information sharing policy
- Restructure database
- Develop application(s)
- Integrate external/internal databases
- Test links with customers
- Negotiate role of sales
- Develop marketing strategy
- Deploy client software

Cost of each additional electronic channel: 25% - 20% of original.

Source: Gartner Group, Inc., Stamford, Conn.

say even sophisticated IS shops will probably end up outsourcing such tasks.

Shops that do will find plenty of choices: A fast-growing league of electronic data interchange and E-mail vendors, value-added network providers, telecommunications giants, systems vendors, including Digital Equipment Corp., Internet access providers, small consulting boutiques and on-line services are all jockeying furiously for the privilege of helping large companies set up business on the Internet (see related story page 85).

Industry watchers say it's too early to pick winners. Ironically, Forrester Research, Inc. analyst Janet Hyland and Paul Callahan had that new-age Connect, Inc. in Cupertino, Calif., and CommerceNet will be best odds favorites. In the long term, IBM, Microsoft, Motorola, Inc., TeleCommunications International, Time-Warner, GTE Corp. and Silicon Graphics, Inc. will be top contenders, Taylor says.

Other issues loom. Many new vendors sell in-

ternet access directly to sales and marketing executives. Thus, the chances for friction between IS and user management seem high.

Then there's Internet culture, which is decidedly uncommercial. "Internet advertising can be really risky if the marketing department tries some real in-your-face advertising and doesn't tell the MIS people," warns Rosalind Resnick, co-author of the new book, *The Internet Business Guide*. "MIS people could wake up and find the whole system clogged up and shut down with a single mail message that explodes into 1,000 pieces. The systems and network administrators have to clean up the mess. It's happened two or three times."

Sales departments that fear elimination may also pose problems, Taylor warns.

#### Hope on the horizon

Despite myriad headaches, solutions may be coming, thanks to dozens of industry groups, vendors and researchers working feverishly to safeguard money passing over the 'net.

Many multinational firms are banking on "smart cards" as the Internet currency of choice, according to Catherine A. Allen, a vice president at Citicorp and founder of The Smart Card Forum. The year-old industry group points Visa, the U.S. Postal Service, AT&T and numerous health care groups among its 150 members.

The Financial Industry Technology Consortium, headed by Citicorp's Schutze, is recruiting large organizations to develop and support digital signatures and payment schemes. Other approaches are being developed by Netmarket in Nashua, N.H., the Dutch firm Digicash, Cybercash, Inc., Carnegie Mellon University in Pittsburgh and the University of Southern California in Los Angeles.

The 2,700-member Society for Information Management is also studying Internet best practices, including funds transfer.

On the encryption front, CommerceNet has begun to test so-called "Secure NCSA Mosaic" browsers. Plus, a public key encryption toolkit for software developers is expected later this year from Terisa Systems, a Palo Alto, Calif.-based joint venture of RSA Data Security, Inc. and Enterprise Integration Technologies in Menlo Park, Calif.

Industry interest is also rising. The latest example: In September, Sun and Mosaic Communications Corp. announced they would collaborate on new security, authentication and billing technology aimed at accelerating electronic commerce on the Internet.

Still, it's early. "If you have to make a business case and establish [return-on-investment] payback in the next 12 to 24 months, I would worry seriously about a program being government-subsidized like CommerceNet," Taylor says. "For now, stick with CompuServe, Prodigy and America Online."

Ultimately the biggest boost may come from the telephone companies. By mid-1996, major long-distance providers will carry most commercial Internet traffic, predicts George Colony, president of Forrester Research. The huge intercompany pay, he predicts, will be "vastly more business-ready than today's amorphous conglomerates."

Until then, experts say it makes sense to fire up your Internet engines and ease into traffic. But drive slowly and don't carry any valuables.

Magnitt is *Computerworld's* senior editor, corporate strategies. Booker is senior editor, Midwest bureau.

All the world's a mall



Coming soon to a television near you? Home Shopping Network plans to merge on-line and television shopping.

If there's going to be an archetypal success story for Internet-based shopping, it may well be the Internet Shopping Network (ISN). Entrepreneur Randy Adams founded ISN in June 1992.

By April, the Menlo Park, Calif.-based venture had gone on-line. Today Adams is president of a new \$1.2 billion company, Home Shopping Network's Internet Inc. Last month, Home Shopping Network, Inc. (HSN) purchased ISN for an undisclosed sum. The acquisition by Clearwater, Fla.-based HSN was a perfect match, Adams says. "What we're doing on the Internet is not that much different from what they are doing on the telephone."

In both cases, Adams says, members get a number and a password, and they are ready to shop. The plan is for ISN to expand its merchandise beyond computer goods, offering more of the general consumer goods now found on the Home Shopping Club. Eventually, by the hope is that customers will be able to contact the Home Shopping Club via ISN.

HSN is no stranger to leading-edge technology. It already processes about half of its 250,000 daily orders using voice-recognition technology. The other half is processed by 2,000 human operators. HSN uses high-end Sun SPARC servers. All technology is housed at a 50-acre campus in St. Petersburg, Fla. Special fiber lines criss-cross the site. Product database and information connections are now located in Menlo Park but will soon be linked via frame relay.

Adams says he understands the concerns about Internet security and technical issues. But he's also convinced doubters will come around. "They don't see the opportunities yet. They will."

His new company is sold on those supposed opportunities and has big expansion plans. ISN now sells 20,000 products from 1,000 vendors. It expects to hit 100,000 products by the end of next year.

The current Internet system uses Mosaic to access Informix Software, Inc. and Sybase, Inc. databases. The system runs some 30,000 lines of custom code. Adams says the goal during the next few months is to link the two systems. HSN currently processes more than 250,000 orders daily.

This would give the organization a tremendous marketing advantage. Consumers would have access to information on every available product at any time, rather than being limited to the product that happens to appear on the television screen.

"By midyear '96 we'll have about 1 trillion bytes [of data] on products, including text and images and video," he says. To that end, ISN is pioneering work of Macromedia, Inc.'s Director multimedia authoring tool. Adams is developing a new type of Internet client, which will let users download and play Director movies from ISN servers. A January release is planned.

Meanwhile, HSN's new Home Shopping Network Interactive Division will also offer the same data on Prodigy, CompuServe and possibly America Online.

"We think, we know there's an opportunity" for major revenue from back-end processing and order fulfillment, Adams says. Companies willing to invest will prosper too, he predicts. "We're businesspeople and Unix geeks," he says proudly. "You have to be if you want to successfully execute this play."



everything IS NEW.  
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WAS.

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for a NEW way  
of WORKING.

TIME TO rise and shine.

## INTRODUCING 1-2-3 RELEASE 5. NOW THE LEGENDARY SPREADSHEET BRINGS MORE PEOPLE TO THE NUMBERS AND THE NUMBERS TO LIFE.

1-2-3® has always helped individuals become more productive. Now it goes to a new realm—workgroup productivity. With strengthened ties to Lotus Notes® and new, sophisticated routing features, workgroups are using 1-2-3 Release 5 to make decisions, reach consensus and explore possibilities.

No other spreadsheet has the features of 1-2-3 Release 5. Features that make everyday spreadsheet tasks easier. Features that help you move from task to task fluidly. Maximum productivity, minimum effort.

freedom  
of MOVEMENT,  
NOT  
chains of COMMAND.

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Say you're working on the annual budget in 1-2-3. You can save your spreadsheet in Notes. Then share ideas and information with colleagues working on the same budget at the same time.

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READY**

1-2-3. So you can roll that 1-2-3 information back into any Notes application.

**POWERFUL WORKGROUP FEATURES  
EVEN WITHOUT NOTES.**

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[illegible]

1-2-3's Range Routing lets you share data with colleagues—sequentially or all at once—collecting their comments and input into a single document.

Plus, unlike other spreadsheets, 1-2-3 can designate particular ranges for comment or review by particular users, rather than routing the entire worksheet. Range Routing lets you mail the spreadsheet range to workgroup members for input, track progress, then roll everyone's ideas back into your file, complete with comments and changes tracked as versions.

1-2-3 Release 5 worksheets and ranges can be routed using either VIM, or MAPI based e-mail and can be routed either serially or in parallel.

**MAXIMUM PRODUCTIVITY,  
MINIMUM EFFORT.**

1-2-3 Release 5 is packed with innovative new features designed to help you get more done with less effort.

SmartMasters™ are predesigned and customizable templates of everyday business forms — like expense reports, invoices and purchase orders — with built-in intelligence

to guide you through common tasks in record time. Or create custom SmartMasters for yourself or your workgroup.

With Lotus Maps you can create instant maps of geographic data. Select a range of data and watch 1-2-3 Release 5 create the appropriate map with color-coding based on data ranges. 1-2-3 Release 5 ships with maps for the world by country, U.S. by state, Canada by province, Europe, Mexico, Japan, Taiwan and Australia.

1-2-3 Release 5 features seamless integration with Lotus Approach® database to easily create data entry forms and generate reports and mailing labels.

With Fast Format you can apply the formatting you've designed for one range to any other range in the worksheet — with one click of the mouse.

One-Step Charting lets you build a chart complete with labels, titles and legends, all in a single step.

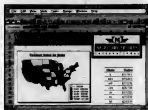
Drag-and-Fill fills in ranges from other documents in just one step. And our improved OLE 2.0 Drag-and-Drop lets you move copy or data across worksheets or files fast.



Multi-page Print Preview lets you view up to nine spreadsheets on your screen before you print.

Taken all together, the new 1-2-3 is loaded with enhancements that make getting the job done a whole lot easier—alone or in a workgroup. And 1-2-3 Release 5 gives you the best compatibility with 1-2-3 for DOS of any spreadsheet. To learn more about 1-2-3 Release 5, visit your Lotus Authorized

Reseller or call 1-800-TRADE-UP, ext. A270\* for a free demo disk. A 1-2-3 upgrade costs \$119.\*\*



1-2-3 Release 5 features Lotus Maps. It's the easiest, most effective way to analyze your spreadsheet data geographically.

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Working Together

# NEW SMARTSUITE 3.0. A MAJOR RELEASE TO HELP YOU AND YOUR TEAM WORK TOGETHER.

To work better people need powerful desktop applications, built for both individual and team productivity. SmartSuite® 3.0 is exactly that. It's the best suite for this new way of working because it's the only suite built to optimize Lotus Notes.

The applications that make up SmartSuite have been upgraded in some very important ways—so they work harder and work together better than ever.

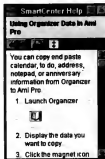
1-2-3 Release 5 is packed with new features like SmartMasters spreadsheets templates, Lotus Maps for geographic visuals of data, Smart Assistants to guide you, seamless integration with Approach database, Range Routing for mailing spreadsheet ranges, OLE 2.0 Drag-and-Drop, and, of course, Lotus Notes Integration.



The new Lotus Approach 3.0 offers unprecedented ease-of-use, PowerClick™ reporting, X10™ technology (our new, exclusive, speed-optimized architecture) and the easiest-to-design forms, mailing labels and crosstabs on the market.

Lotus Ami Pro® offers powerfully fast word processing (49% faster than Word, 103% faster than WordPerfect®), low memory/hard disk requirements (4MB RAM, 19MB for complete installation), with proofing tools, collapsible click-and-drag outlining, revision marking, powerful macro language and automatic list renumbering. There are over 55 predesigned style sheets

for memos, faxes, reports and more. Built-in charting & in-context drawing tools. Ami Pro also seamlessly imports documents from other word processors.



Help Card, one of SmartSuite's powerful help tools, guides you through cross-application tasks.

Freelance Graphics® 2.1 features task and industry specific SmartMasters, a unique 3-step process to create presentations, charting and drawing, presentation management and improved import/export capabilities.

And Organizer™ 1.1 offers easy linking for cross-referencing, flexible printing, group scheduling and nifty integration with Ami Pro so you can create monthly calendars in Ami Pro from Organizer appointments.

## SMARTSUITE 3.0 IS A BETTER INTEGRATED SUITE ACROSS THE BOARD.

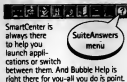
The integration in SmartSuite begins with a consistent look and feel across applications—they share a common user interface, menus, SmartIcons® and a Live Status Bar.


SmartCenter, the headquarters for cross-application services, is always there to help you switch or launch applications. You can customize its icon palette into the configuration that's most convenient for you.

SuiteAnswers are cross-application help tools which include a SmartSuite Guided Tour and task-oriented Help Cards—plus the new ScreenCam™ for creating audio/visual "screen movies." It's the only help service in Windows™ that stays up as you move between applications.

Smart Assistants are your step-by-step guide through common tasks.

And our powerful 1-2-3/Approach database integration lets you analyze and





format 1-2-3 data, taking full advantage of Approach's easy-to-use forms and reports, dynamic crosstabs to pivot rows

and columns and tools for creating summaries or viewing data in several formats.

### SMARTSUITE, THE NOTESREADY SUITE, EXTENDS THE DESKTOP TO THE WORKGROUP.

SmartSuite 3.0 includes powerful workgroup enhancements. But for an even higher level of workgroup capability, just add Lotus Notes and see what happens:

Combined with Lotus Notes, 1-2-3 Release 5 becomes a model management system that lets team members search a library of worksheets.

Add Notes to Ami Pro 3.1 and it becomes a real "workgroup processor." Use the built-in Notes database for efficient, secure document sharing and tracking. And you can format your Notes or cc:Mail® messages directly in Ami Pro.

Approach 3.0, the top-rated Windows database, becomes a shared reporting, forms and analysis tool. Its advanced integration with Lotus Notes lets you build sophisticated, information-intensive workgroup applications and join Notes data to other types of databases, from dBASE to SQL.

And Freelance Graphics 2.1, used with Notes, becomes a presentation storage system, a library of past presentations, which a team can browse and pull from to create new ones.

For more information on SmartSuite Release 3.0 and each of the 5 top applications that make up SmartSuite, visit your local

Reseller or for a comprehensive multimedia overview call 1-800-TRADE-UP, ext. A271\* for the free Lotus Product Gallery CD. A SmartSuite upgrade costs \$299.\*\*

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READY**

the COMMITTEE  
IS dead.  
long live  
the TEAM.

Lotus

## SMARTSUITE 3.0

SmartCenter  
(to move between applications)

SmartMasters  
(for predesigned templates)

Fast Format  
(apply styles throughout documents)

ScreenCam  
(to put your ideas in motion)

Smart Assistants  
(to guide you)



Configurable Single Install  
(for easy one-step installation)

Small Footprint On Your PC  
(the most efficient suite available)

1-2-3/Approach Integration  
(database power in your spreadsheet)



### 1-2-3 RELEASE 6 SPREADSHEET



SmartMasters  
(useful predesigned templates)

Lotus Maps  
(geographic visuals of data)

Lotus Approach Integration  
(for extra database power)

Smart Assistants  
(to guide you)

Range Routing  
(for mailing spreadsheet ranges)

Direct Access To Database Files  
(open dBASE and Paradox® files directly into 1-2-3)

OLE 2.0 Drag-And-Drop  
(move or copy data, with visual mouse cues)

### APPROACH 3.0 DATABASE



PowerClick Reportwriter  
(for wysiwyg design)

Smart Assistants  
(to guide you)

InfoBox  
(instant on-screen manipulation)

X10 Speed Architecture  
(for blazing speed)

Lotus 1-2-3 Integration  
(for working with 1-2-3)

PowerKey™ Technology  
(for direct access to existing data)

Dynamic Crosstabs  
(for drag-and-drop analysis)

### AMI PRO 3.1 WORD PROCESSOR



New Proofing Tools  
(for easy document proofing)

Collapsible Click-And-Drag Outlining  
(simplifies organization)

Revision Marking  
(edit documents without confusion)

New Style Sheets  
(more professionally designed templates than ever)

Text Styling  
(make your e-mail look better)

WordPerfect SwitchKit®  
(the move from DOS is painless)

Stick-It Notes  
(add comments and messages)

### FREELANCE GRAPHICS 2.1 PRESENTATION GRAPHICS



Unique Three-Step Process  
(for quick and easy presentations)

One-Click Charting  
(access a library of charts and drawings with one click)

Page Sorter  
(presentation management at a glance—review and rearrange with ease)

Import/Export  
(more file formats than ever—including Harvard/DOS and PowerPoint® 3.0)

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Easy Linking  
(makes cross-referencing simple)

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(use with cc-Mail to set up meetings with anyone on your WAN or LAN)

Real Time Access  
(instantly view co-workers' busy and free time)

## how the NEW SMARTSUITE 3.0 HELPS workgroups work.

The new SmartSuite 3.0. Featuring major new releases of 1-2-3, Ami Pro, Approach database and Freelance Graphics—plus the popular and powerful personal information manager Organizer—this is the ultimate integration of your most important desktop tools. For more information on SmartSuite Release 3.0 and each of the 5 top applications that make up SmartSuite, visit your Lotus Authorized Reseller or for a comprehensive multimedia overview call 1-800-TRADE-UP, ext. A271\* for the free Lotus Product Gallery CD. A SmartSuite upgrade costs \$299.\*\*

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## Calendar

OCT. 30 - NOV. 5

**American Production and Inventory Control Society (APICS) 37th International Conference and Exhibition: "Synthesizing Change: Evolution to Success."** San Diego, Oct. 30 - Nov. 1 - Includes a panel discussion of North American Free Trade Agreement trade and regulatory issues by U.S. and Mexican business leaders and academicians and a briefing on the California economy by economist Michael Evans. Keynote speakers include John Trefler on the effects of the new world on business, society and the economy; Future Price-Setting: correspondent, Hendrik Smith on mastering global competition; and General Motors Corp. Saturn division executive Donald W. Hudler on meeting global competition in the marketplace. Contact: APICS, Falls Church, Va. (703) 237-4344.

**American Compensation Association's (ACA) 1994 Productivity and Alternative Rewards Forum.** Dallas, Oct. 31 - Nov. 1 - Keynotes include: "Flexibility, Precision and Efficiency: Benchmarking of Performance in an 'Automated' World" by David Pearce Snyder, a consulting futurist at Snyder Realty Enterprise in Bethesda, Md.; "Digital's Re-engineering Journey of Excellence" by Adriano Stadelman, vice president of executive operations at Digital Equipment Corp.; and "Team and the High-Performance Organization" by Don R. Katsenbach, director of McKinsey and Co. in Houston. Cost is \$535 for ACA members and \$605 for nonmembers. Contact: ACA, Scottsdale, Ariz. (602) 951-9181.

**Interflit '94.** Oct. 31 - Nov. 1 - Keynote: Joseph Turci, chairman of the board and chief executive officer of Wang Laboratories, Inc. Contact: User Group Office, Lisle, Ill. (708) 789-8177.

**First Annual Conference on Assistive Technologies.** Sponsor: The Association for Computing Machinery's Special Interest Group on Computers and the Physically Handicapped. Martin Del

Rey Calif., Oct. 31 - Nov. 1 - Contact: Theodore D. Sterling, School of Computing Science, Simon Fraser University, Burnaby, British Columbia (604) 293-4655.

**Education '94.** San Antonio, Oct. 31 - Nov. 3 - Theme: Transforming education measures and milestones. Contact: Donna Laggett, Edcon, Frederick, Md. (202) 872-4250.

**Federal Imaging '94.** Washington, Nov. 1-3 - Contact: Reed Exhibition Co., Silver Spring, Md. (301) 495-7100.

**Field and Sales Force Automation Conference and Exposition.** Boston, Nov. 1-3 - Topics include: new technology; client/server hardware, operating systems, automating database strategies, networking software, software tools for customizing applications, contact management software, use of CD-ROM in the field and notebook computers. Contact: DCL, Andover, Mass. (508) 479-3880.

**Cooperation: The Key to Payment System Policy.** Toronto's Corner, Va., Nov. 2-3 - Sponsors: The Electronic Funds Transfer Association and National Automated Clearing House Association. Contact: Electronic Funds Transfer Association, Herndon, Va. (703) 435-9940.

**Concurrent Engineering and Product Development: Best Practices from Concept to Delivery.** Orlando, Fla., Nov. 2-4 - Topics include determining the best product to introduce into the market, discovering and launching new products before your competitors have identified a need for them and making complex, risky projects predictable and on schedule. Contact: Management Roundtable, Boston, Mass. (617) 232-8980.

**Outsourcing, Consulting and Insurance.** Burlington, Calif., Nov. 4 - Contact: University of California, Berkeley Center for Information Technology and Management, Berkeley, Calif. (510) 643-5318.

## NOV. 5-11

**18th Annual Symposium on Computer Applications in Medical Care.** Washington, Nov. 5-9 - Contact: American Medical Information Association, Bethesda, Md. (301) 657-1291.

**Client/Server ROI and Scalability: An Answer to the \$45,000 Question.** Hightstown, N.J., Nov. 6-8 - Contact: The Yankee Group, Boston, Mass. (617) 387-1000.

**Fifth Annual Conference: Applications of Software Measurement.** La Jolla, Calif., Nov. 6-10 - Seminars include: "Mad About Measurement"; "Risk Assessment of Software Systems Acquisitions"; "The Cost of Quality: Really Measuring Software"; "Lessons Learned: Modeling the Software Development Process"; "Simplifying Function Point: Small is Beautiful"; and "The Future of Metrics: Trends and Possibilities." Sponsors: McCabe & Associates, LDRA Technology Center, Software Quality Engineering, Jacksonville, Fla. (404) 250-8638.

**Xplore '94 Annual Electronic Document Systems Global Conference and Exposition.** Phoenix, Nov. 11 - Keynote: "Future View: A Look Ahead" by Daniel Jernan of Barnes Research Associates, Inc. Contact: Xplore International, '94, Pacific Palisades, Calif. (800) 826-3676.

**Business Process Analysis, Work Process Assessment and Redesign.** Chicago, Nov. 7-8 - Topics cover a wide range of elements of business process re-engineering, including methodologies, logistics and analysis. Contact: International Quality & Productivity Center, Upper Merionide, N.J. (201) 682-8864.

**The 1994 National Conference on Electronic Records: Defining the Corporate Time Bomb.** Chicago, Nov. 7-8 - Cost \$975. Contact: Coburn Associates, Inc., Chicago, Ill. (800) 300-7067.

**1994 Government Microcircuit Applications Conference.** San Diego, Nov. 7-10 - Keynote: Arati Prabhakar, director at the National Institute of Standards and Technology. Contact: Palisades Institute for Research Services, Inc., Arlington, Va. (800) 787-7477.

**Eighth Annual Meeting and Conference of The Software Management Association (SMA): Managing Software Assets in a Changing New World.** Phoenix, Nov. 8-11 - Keynote: "Changing Your Leadership Style" by Michael Caruso, project manager for billing systems at Amtech Corp. and "Radiating Life Cycle Costs: Myths and Realities" by Thomas M. Pigot, president of Technical Software Services. Fees are \$775 for SMA members and \$845 for non-members. Contact: Robin Gross, SMA, Vallejo, Calif. (707) 643-6425.

**1994 International Product Development and Management Association Conference: Bridging**

**the Gap from Concept to Commercialization.** Boston, Nov. 8-12 - Topics include generating ideas/concepts for new products, managing technology development, product evaluation and portfolio planning, product planning and control, development and partnership, market acceptance testing, product commercialization and development process improvement. Contact: Michael Anthony, Pittsburgh Rabit Todd & McGrath, Wexner, Mass. (617) 647-2500.

**The Great Lakes SQL Server Users Group 1994 Annual Conference.** Chicago, Nov. 10 - Contact: Simon Mireles, AZ Database, Inc., Skokie, Ill. (708) 853-0089.

## NOV. 12-18

**1994 Annual Computer Security Conference and Exhibition.** Washington, Nov. 14-18 - Topics will include security issues, client/server, electronic mail, the Internet, telecommuting and business continuity. Contact: Computer Security Institute, San Francisco, Calif. (415) 905-3028.

**Symposium on Operating Systems Design and Implementation.** Monterey, Calif., Nov. 14-17 - Contact: Zanna Kargis, Unixis Association, Berkeley, Calif. (415) 325-6649.

**14th International Software Testing Conference: Bridging the Software Testing Process to Reality.** Orlando, Fla., Nov. 14-18 - Contact: Quality Assurance Institute, Orlando, Fla. (407) 365-1111.

**Comdex/Fall '94.** Las Vegas, Nov. 14-18 - Conference showcases include network computing, E-mail, multimedia, IDE sources, office systems, desktop publishing and integrated services. Digital Network solutions. Keynotes: Bill Gates, chairman and chief executive officer of Microsoft Corp., and Andrew S. Grove, president and CEO of Intel Corp. Costs for attending all conference events are \$550 for all days, \$450 for two days, \$325 for one day and \$185 for the International Marketing Forum. The cost for attending only exhibits is \$75 for all five days; a \$100 pass includes all exhibits for five days, plus keynote speeches and "power punch" seminars. Contact: The Interface Group, Needham, Mass. (617) 648-6800.

**MIL-STD-1553 Day Seminar.** Phoenix, Nov. 15-16 - The seminar is intended to help interpret requirements of the MIL-STD-1553 data bus and covers definitions, protocol, terminal operation, hardware characteristics and design, software and systems design, test requirements and test equipment. Cost is \$745 per person. Contact: Loy Marshall, Teal Systems, Inc., Phoenix, Ariz. (602) 961-1010.

**Eighth Association for Computing Machinery Symposium on User Interfaces and Software Technology.** Pittsburgh, Nov. 15-17 - Contact: Brad Myers, Carnegie Mellon University, Pittsburgh, Pa. (412) 268-5100.

**The Association for Manufacturing Excellence (AME) 1994 International Conference.** Boston, Nov. 15-16 - Contact: AME, Wheeling, Ill. (708) 509-5252.

**Fuzzy Logic Control: Theory and Applications.** Atlanta, Nov. 18-19 - Contact: Department of Consulting Education, Georgia Institute of Technology, Atlanta, Ga. (404) 884-2547.

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*"We made the scheduled migration date. Could not have done it without Workstation products. Needed capabilities that it and other products didn't offer - only UniXEDIT."* —Bellcore

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*"Got our users up on new system instantly. The whole migration resulted in \$1M per year savings. Got applications moved in 4 months. On target and on budget."* —G.D. Seale

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**"INFORMIX-NewEra is exactly the type of client/server development environment developers need to create production-level applications."**

**Judith Hurwitz**  
President, Hurwitz Consulting

# Introducing A New Era In Application Development.



Application developers who have moved to graphical development tools are learning a painful lesson: while prototyping is fast and easy, it's another thing to try to deploy enterprise applications.

Sure, applications built using the first generation of graphical client/server tools *look* great. But ultimately, they don't have the power to scale up to enterprise-wide client/server solutions.

Introducing INFORMIX-NewEra<sup>®</sup>, the second generation. NewEra has beauty *and* brains. All of the graphical tools you expect are there, backed up by an object-oriented development environment designed explicitly for creating mission-critical, enterprisewide client/server database applications.

**Peter Kankas, Vice President, Aberdeen Group:**

**"INFORMIX-NewEra is an excellent product that understands both the client and server sides of application development."**

NewEra's next-generation features include visual programming tools, an industrial-strength object-oriented language, interactive debugger, compiler, repository, and support for team development on Windows or UNIX. It's client/server ready, and it will support open connectivity, so you can use NewEra with non-Informix databases, too.

**Jeff Papawa, Notes Product Director, Lotus Development Corp.:**

**"INFORMIX-NewEra offers Notes users the ability to build enterprisewide, client/server applications that extend the value of Lotus Notes."**

Complex applications can be developed quickly, using class libraries provided by Informix and our partners. In fact, Informix has already signed up a number of class library partners, including Lotus for Notes, as well as others for imaging, EDI, and more.

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We'll send you an independent report from Judith Hurwitz, highlighting the limitations of first-generation client/server tools, and the benefits of the second generation. **Send or call toll-free 1-800-888-IFMX, ext. 22 for your free copy.**

**INFORMIX<sup>®</sup>**

# The CW Guide to E-mail systems

## User E-mail issues

NUMBERS ARE OVERALL SATISFACTION RATINGS BASED ON A 1-10-10 SCALE WHERE 10 IS BEST. FINDINGS ARE BASED ON SURVEYS WITH 200 USERS AND ARE LISTED IN ORDER OF IMPORTANCE.

### SCALABILITY

Expanding systems to more than a few hundred or a few thousand users can cause them to break down and become difficult to manage.

5.9

### VENDOR TECHNICAL SUPPORT

Vendor technical support can be spotty, and when there are multiple systems involved there is no single contact to resolve problems.

6.5

### USER MANAGEMENT OF MAIL

Users get flooded with information. They need rules, agents or filters built in to the packages.

7.1

### ADMINISTRATION AND MANAGEMENT

The technology is not well-developed for handling problems, alerts, backups or remote sites.

5.8

### SYNCHRONIZING DIRECTORIES

Synchronizing directories across different mail systems and network operating systems is very difficult.

4.7

### STANDARDS

Vendors are slowly moving to support common standards for interoperability.

4.9

### BUILDING APPLICATIONS OVER MAIL SYSTEMS

You might experience trouble with support for off-the-shelf and custom applications.

5.0

### CONNECTING MULTIPLE E-MAIL SYSTEMS

Problems occur with message translation, support for attachments and notification delivery.

5.9

### SUPPORTING MOBILE USERS

Giving them access, protecting the fidelity of messages and supporting different technology options such as wireless are all unresolved issues.

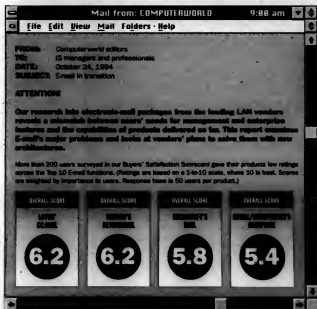
4.9

### CONNECTING TO EXTERNAL USERS

Making the connection and safeguarding security are problematic.

5.9

# mis-match



# Users struggle with E-mail woes

By Barry L. Jenkins

As LANs become the nerve center of the corporation, LAN-based electronic mail has become less of a high-tech means to arrange-of-the-baby show and more of a strategic tool. To meet new demands, users are champing at the bit for products that are more mature and easier to manage and can easily converse with myriad competing and legacy E-mail systems.

"We are much happier today than we were six months ago," says Marion Weiser, unit supervisor at Chevron Information Technology Co. in San Ramon, Calif. However, "compared to where we would really like to be, we are still not happy."

When users talk about their most critical needs in the enterprise, LAN-based labyrinth, two words keep popping up like bad pocket: interoperability and administration, in that order.


More than 200 users surveyed in our Buyers' Satisfaction Scorecard on E-mail rated the leading products' ability to provide connections with other E-mail systems a low 5.9 on a scale of 1 to 10, where 10 is best. They rated administration and management features 5.8. (Product-specific ratings can be found on page 102.)

FILE IT—NOW!

"If the vendors have any incremental E-mail, page 101

Mail from: Margaret Line 9:08 am

File Edit View Mail Folders Help



**From:** Margaret Line, director of new computer support  
Western Kentucky University, Bowling Green, Ky.  
**To:** Dave Marshak  
**Date:** October 24, 1994  
**SUBJECT:** Establishing connectivity with Lotus/CCMail

**SUMMARY:** We installed CCMail this summer when we began to expand our network beyond our students to our administrative staff and faculty. When we did this, we needed to implement an E-mail system. We have 15,000 students with access to the network, seven faculty offices and administrative offices. It is my group's responsibility to decide how users will be allowed, where mailboxes will go—these areas of things.

**DETAILS:** We are a Novell Netware shop—all of our servers are Novell. Our mailboxes are on a 386/16. We also have a VAX cluster and a couple of Unix machines.

**PROBLEMS WITH LOTUS/CCMAIL:** From a manager's standpoint, the kind of statistics reporting I've seen need to improve, other than the mailroom-based E-mail packages. The number of messages we send is good, but I need more detail on how people are using E-mail. I need to know if we mail went to the Internet, on campus or to one of our existing computers.

I need to know what resources are being used when our mail system is being used.

Mail from: Dave Marshak

File Edit View Mail Folders Help

**From:** Dave Marshak, vice president and senior consultant  
Petrico Seybold Group, Boston  
**Date:** October 24, 1994

**SUMMARY:** LAN-based E-mail packages have not yet caught up with host-based systems when it comes to management and administration capabilities. This is particularly true in the area of maintaining and reporting statistics, which are important for the upkeep of the system and planning future directions for the use of E-mail.

This area is being targeted by virtually all of the E-mail vendors. For example, Lotus has just announced CCMailPlus, which is a new graphical wide-area message handling package for CCMail. This package includes statistics gathering and charting and allows what if scenarios through a set of planning tools.

Mail from: James Hafen 9:08 am

File Edit View Mail Folders Help

**From:** James Hafen, programmer/analyst  
Minghsia Corp., Salt Lake City  
**To:** Dave Marshak  
**Date:** October 24, 1994  
**SUBJECT:** Reporting and delivery notification in Novell/WordPerfect E-mail

**SUMMARY:** A real big E-mail issue for us is getting our right to be able to see in line with what's going on in our office environment. The first release of Novell/WordPerfect E-mail was really poor in utilizing asynchronous gateways.

All of our enterprise resources are shared through E-mail. We're using the scheduling package to notify users when conference rooms are booked. Our technical support uses it to help users solve systems problems.

Many responsibilities for our E-mail system have been reduced since we switched some of our platforms. I come in every morning and check the gateway to make sure everything is functioning properly. The time we spend on E-mail maintenance has decreased greatly.

**DETAILS:** We have about 350 users in-house and another 30 on the road who use an asynchronous gateway to get their mail. We have a Simple Mail Transfer Protocol gateway so we can have Internet access. Our message server uses an OS/2 platform, which has proved a real plus for us.

**PROBLEMS WITH NOVELL/WORDPERFECT E-MAIL:** One big weakness is the management utility, which is DOS-based. This is a throw-in side installation to running DOS/Windows. The reporting capabilities are really poor and inefficient—in fact, they're virtually nonexistent. You have to ask for everything and then sort out the specific information you want.

Delivery and nondelivery notifications are a problem. I don't know if there's a bug in the system or what, but there's something called Notify, and we've had a lot of delivery circumstances associated with it. For some reason, it just stops working. There's been more occurrences of it not working than we care to deal with.

Also, the package doesn't have a Message Handling Service gateway or Message Application Programming Interface support. Those were things we would have tried to implement if they had support for those standards. We would have integrated the E-mail on our bulletin board service into our office environment.

Mail from: Dave Marshak

File Edit View Mail Folders Help

**From:** Dave Marshak  
Petrico Seybold Group  
**Date:** October 24, 1994

**SUMMARY:** Your experience is quite typical. As an enterprise relying more on their mail systems for both communications and mail-enabled applications (in your case, meeting room scheduling), they find the management and integration issues become critical.

Your frustration with the management tools and reporting utilities is shared by most E-mail administrators. While all of the major E-mail vendors boast their Windows application as their flagship product, few have delivered Windows-based administration tools, forcing you to use non-graphical, batch-oriented tools. And while much of the functionality of enterprise-level messaging systems has come to the LAN, administration, management and reporting tools have not yet reached that level of sophistication.

The good news is that major vendors are recognizing these shortcomings—after all, you and your other customers have been hammering away at them on this subject for years. The bad news is you will probably have to wait a little longer to actually get the functionality and ease of use you want.

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 (S) Windows (W) Windows  
 (C) OS/2 (I) Windows  
 (U) Unix (T) Net/Novell  
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 60 Government - State/Federal/Local  
 70 Communications Systems/Public Utilities/Transportation  
 80 Mining/Construction/Petroleum/Refining/Agric.  
 90 Manufacturer of Computers, Computer-Related Systems or Peripherals  
 Systems or Peripherals  
 95 Computer Integrators, Vendors, Computer Service Bureaus, Software Planning & Consulting Services  
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 40 Dir. Mgr. Network Sys., Data File Control  
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 60 Dir. Mgr. Sys. Development, Sys. Architecture  
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 (S) Windows (W) Windows  
 (C) OS/2 (I) Windows  
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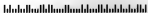
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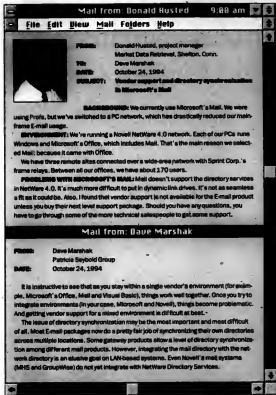
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## The CW Guide to E-mail systems



### E-MAIL

CONTINUED FROM PAGE 98

mental development delays to speed, and the choice is between adding new features or providing interoperability, they should put it on interoperability," says Durwin Sharp, E-mail adviser at Exco Computing Services Co. in Houston.

Like many other IS managers, Sharp supports thousands of users, many of whom are logged on to systems sharing only limited functions. "We have a small but growing [Banyan Systems, Inc.] BeyondMail group, currently numbering 2,000," he says. He also has many groups of 1,000 to 2,000 users on various minicomputers, such as Wang Laboratories, Inc. and Data General Corp., who use their own mail systems.

But the bulk of his 70,000 users remain on IBM's mainframe-based Professional Edition Systems (Profs) or OfficeVision. Currently, he uses Lotus Development Corp.'s Soft-Switch to provide cross-platform E-mail, but "any time the products are not integrated, it takes more

time than we want to devote to it," he says.

Jed Tix, technical specialist at Variable Annuity Life Insurance Co. in Houston, agrees that providing interoperability is often more trouble than it is worth. "We are about 85% Lotus Notes and 5% CC-Mail," Tix says.

"I'm going to scream," he adds. "It's just out west the hassle dealing with the gateway."

One of the key issues inhibiting interoperability according to a report by Patricia Seybold Group, a consulting firm in Boston, is the use of proprietary mail directories. This forces administrators of multiple systems to manually synchronize their directories among their systems.

But some gateways provide support for directory synchronization with a limited number of other systems. For example, Microsoft Corp.'s Mail for PCNetworks will synchronize Novell, Inc.'s Message Handling Service, Digital Equipment Corp.'s MailBus, Profs and others with its own directory.

#### MANAGEMENT MIDDLE

Another hurdle for users is the need for management tools that

can help E-mail fulfill its new role. A common problem is that while the E-mail systems are all compatible with Windows and other graphical user interfaces, the management tools in most part remain stranded in DOS.

Lotus is addressing this issue with CC-MailView, a graphical central E-mail monitoring tool that displays a map of the global messaging network [CW Oct. 10]. Users can drill down to view specific CC-Mail post offices by clicking on icons. The tool will also provide statistics on gateway performance, post office errors, session logs and management.

Weiler supports approximately 10,000 users on Microsoft's Mail, 12,000 on OfficeVision VM, 2,000 on Lotus Notes and roughly another 1,000 users on systems ranging from Digital's Mail-In-1 to Simple Mail Transfer Protocol. His biggest problem is a lack of sufficient administration and management tools with Mail, he says.

"On the back end, a lot of administration and management tools for managing large enterprises are not there yet," Weiler says. In terms of routing tables and error detection, "a lot of what we do is customized," and for mail monitoring, "we rely on third-party products," Weiler says.

#### OVERLOAD IMMEDIATE

Another problem Sharp has with today's crop of E-mail products is an inability to handle a large volume of users. "You can't post thousands of concurrent mail users on a node today," with such systems as he can with Profs, Sharp says. "I can't do that with most LAN packages. They just don't scale very well," he says.

Scalability was the most important category of E-mail to the 200 users surveyed in the Buyers' Satisfaction Scorecard. Yet, they ranked the products a low 5.8.

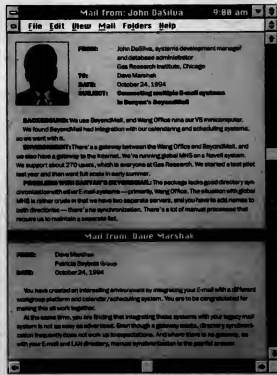
Tix supports a smaller volume but says he still needs better management tools. "I'm still looking for the ultimate Notes administrator tool," he says. Such a tool could do "massive" user and mail database changes, eliminating the need to perform them manually.

Lotus is reportedly working on a partnership with a systems vendor to deliver a joint Notes management product at the beginning of the year [CW Oct. 10].

E-mail offerings are improving slowly, according to Sharp. "It might be where we want it to be—a couple years after we need it." ■

—Gladie could count on page 102

Jenkins is a free-lance writer in Ansonia, Conn.



# BUYERS' SATISFACTION SCORECARD: Low ratings reflect E-mail products in transition



By Kevin Burden

In the market for an electronic mail system? You might save yourself a lot of pain if you postpone your decision until next year.

Because the longevity of a company's E-mail system can be a decade or longer, vendors of the most popular LAN-based E-mail systems on the market are getting ready to introduce major architectural changes next year to carry their customers past the year 2000.

Lotus Development Corp. will introduce Lotus Communications Server (LCS) for CC-Mail, Microsoft Corp. will release Exchange for Mail for PC Networks, and Novell, Inc. will roll out its Open Messaging Environment for GroupWise.

The new modular architectures promise improved performance and scalability. But for now, each E-mail package evaluated in this Scorecard still subscribes to the monolithic, file-sharing design under which all executables are processed on individual workstations, while the server stores all incoming and outgoing messages and provides the user directory reference.

The drawback to this approach is its lack of administrative and management capabilities, which has been one of the primary reasons why these products are difficult to fit to enterprise network needs.

The benefit is strong client functionality. All four packages received their highest scores in this area.

"Both Microsoft Mail and CC-Mail support the major mail-enabling APIs, which allows the underlying mail system to deliver messages to users and other applications," said David Marshak, vice president at Patricia Seybold Group in Boston.

On the administration and management side, the packages received mixed reviews, which re-

MAIL-ENABLING API:  
IMPROVE PACKAGE'S  
MESSAGING CAPABILITY

flects their state of transition. For example, Microsoft's Mail, third in this category, is still administered through character-based DOS programs but provides continuous uptime during general maintenance tasks.

CC-Mail, which tied with BeyondMail in administrative and management ratings, recently added graphical administration tools to Version 2.0 and has more advanced management tools in the works. Two weeks ago, Lotus announced a

graphical central E-mail monitoring tool, CC-MailView [CW, Oct. 10], that will display a map of the global messaging network. Users will be able to drill down in view specific CC-Mail post offices by clicking on icons.

The current product still needs to improve its administrative functions such as reclaiming disk space, according to analysts. Lotus will also support Simple Network Management Protocol (SNMP) in the LCS architecture, which will enable LCS to be managed as an object in a systems management application.

Novell/WordPerfect's latest version, GroupWise 4.1, addresses some of the weaknesses in previous products that resulted in low satisfaction ratings.

The new package (see Test Drive page 106) includes SNMP support for NetWare Loadable Module servers; Messaging Application Programming Interface support; Motif graphical user interfaces; an Internet-like bulletin board service subscription, List-

Server; incoming fax support; and remote access for Macintosh and Power Macintosh users.

Also new is an integrated database maintenance utility that can detect and repair damaged files in the background while the system continues to operate.



"All three systems have grown up from small LAN-based systems. They just do not have all the tools needed to capture the right information to manage large networks."

DAVE MARSHAK, VICE PRESIDENT  
PATRICIA SEYBOLD GROUP, BOSTON

These are signs of the evolution to architectures, which will address the need for standards and reduce network traffic.

—Guide continues on page 106

Burden is Computerworld's senior researcher, CW Guide.

## WHAT'S IMPORTANT IN E-MAIL

- **RELIABILITY**  
Product reliability  
Vendor reliability  
Vendor credibility
- **SUPPORT**  
Quality and responsiveness of vendor's support
- **CLIENT FUNCTIONALITY**  
Sending mail  
Creating mail  
Processing incoming mail
- **VALUE**  
Cost of purchase  
Cost of ownership
- **ADMINISTRATION AND MANAGEMENT**  
Error handling  
User modification  
Directory synchronization
- **MAIL-ENABLED APPLICATIONS**  
Support for industry APIs  
Calendar/scheduling  
Packaged applications
- **STANDARDS**  
SMTP  
SQL  
SNMP
- **REMOTE SUPPORT**  
Access to messages  
On-line/off-line work  
Replication
- **GATEWAYS**  
Support for attachments  
Delivery notification  
Message translation

Note: Only the three most important subcategories are listed by all users are listed under each category.

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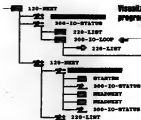
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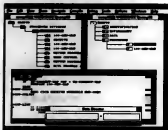
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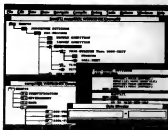
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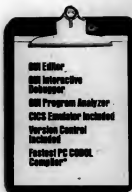
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IS A LOT BETTER?

BY HOWARD MILLMAN

**T**hink of GroupWise as electronic mail on steroids. This upgrade to Novell, Inc./WordPerfect's communications technology reflects more than just a change of name, from WordPerfect Office to GroupWise 4.1. It defines a new suite of genetically integrated messaging services.

### WHAT'S NEW

GroupWise 4.1 includes numerous structural and cosmetic changes: Simple Network Management Protocol support for NetWare Loadable Module (NLM) servers; Simple Messaging Application Programming Interface support; Mosaic graphical user interface; an Internet-like bulletin board service subscription, List Server; and incoming fax support. GroupWise offers remote users multiple ways to connect to the network: Laptop, personal digital assistant or alphanumeric pager owners can dial in or use a wireless link. Also new is an integrated database maintenance utility that can detect and repair damaged files in the background while the system operates.

The one improvement most likely to receive an Emmy from administrators, however, is the vastly simplified installation process. Administrators who precisely follow the installation instructions will be rewarded with a multitiered messaging system that delivers personal scheduling, group calendaring, proxy authorizations, task management and ordered routing. Don Berley, a senior systems analyst at Allied Signal Technical Services, a GroupWise beta tester, described the installation as "a breeze." He set up 11 post offices for 800 users in one hour.

### ABOUT THIS REVIEW

For Computerworld's product test, we mounted the DOS Admin/Windows client software on 486



clients linked to a 486 server running NetWare 4.02. And even with interruptions, we completed our first-time installation in 45 minutes.

One snag occurred with the network interface cards, or more likely, the drivers. Rather than play detective, we switched the done cards for Artisoft, Inc.'s Novell-compatible network interface cards. The problem disappeared. Again, a reminder of the difference between the phrases "NetWare-compatible" and "NetWare-tested."

In addition to NetWare, GroupWise runs under Banyan Systems, Inc.'s Banyan/Net, IBM's LAN Server, Microsoft Corp.'s LAN Manager and a variety of peer-to-peer network operating systems.

Our installation consisted of one domain, one post office and two users. We set those up by interactive

by responding to questions posed by the install utility.

We chose to test the Windows client for two reasons. First, GroupWise is likely to be used only intermittently during the day. We wanted to test Windows' ability to Alt-Tab in and out of GroupWise without unloading the primary application. That process worked well. Second, Windows applications often involve overcoming more hurdles for administrators. Here too we were relieved at the simplicity of installing GroupWise.

Sending and receiving the first message took 30 minutes. Most of that time was spent exploring the seemingly limitless configuration options and appearance preferences. The second message went out in less than 30 seconds.

### STANDOUTS

While all of the features we tested worked well, some stood out because of their ease of use or previous unavailability. These included task management (the ability to add a task to another's calendar), sequential distribution (controlled routing) and rules-based message management (if-then-else filters). Setting up rules proved time-consuming, however, because of the many variations. We think casual users will find this feature difficult to use.

Users who need to transmit formatted files will appreciate GroupWise's ability to display more than 160 file formats. Other features include message auditing functions that enable automatic message cancellation after a predetermined time, present status and retracting unsent messages. If life were only so forgiving,

### MINUSES

The software's documentation, while encyclopedic and informative, will induce extreme boredom in the casual user. That might be the price of obtaining the benefits of an infinitely customizable appli-



GroupWise 4.1 features a new group calendaring function.



Users can reconfigure GroupWise's main window to display the items they use for routine tasks.

cation. We would like to see the vendor redesign and simplify the Users Guide to focus just on the send mail, scheduler and calendar and deal separately with the more sophisticated features such as remote access, task assignment and temporary conditions.

Message Server Packs for DOS cost \$495; NLM, \$2,495; and Unix, \$1,995. Admin Packs cost \$695. Client licenses of 100 or more cost \$95 each. Gateways cost \$295 to \$9,995. For more information, call WordPerfect at (800) 961-2507. ■

—Guide continues on page 109

Millman is a principal at Data Systems Services in Croton, N.Y.

**■ GroupWise brings new meaning to the phrase "everything for everyone" with an encyclopedic offering of product combinations. The Group includes 16 Unix, DOS, NLM, OS/2 server platforms, 12 desktop platforms and 32 gateways. Included in the gateways are support for Lotus Development Corp.'s dBaseIII, Novell's Message Handling System, IBM's OfficeVision/Prote, SAP, alphanumeric and X.400. Future gateways will include Lotus Notes.**



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# COMPUTERWORLD

# FIRING LINE: Memo's mainframe E-mail does Windows but misses on attachment feature



By Kevin Burdoo

**A**s LAN-based electronic-mail vendors rearchitect their systems to handle enterprise needs, several vendors are offering mainframe solutions with Windows functionality.

Such is the case with Verimotion, Inc.'s Memo, an IBM host-based package that has long thrived in the shadow of IBM's Professional Office System (Profs). With IBM transitioning from Profs to OfficeVision, Memo is competing for the installed base of OfficeVision and with LAN vendors that are upending old products that address multiple platforms such as Fischer International Systems Corp.'s EIMC/TAO.

Memo for Windows 1.3, available Oct. 31, is part of Verimotion's integrated host/LAN E-mail system. All the users in this evaluation use Memo/Basic (the mainframe version) and had recently added the Windows client package. The organizations include a manufacturer, a local government agency, a retailer and an automotive company.

Users cited easy customization and forms handling as the product's strengths but had difficulty with OS/2 installation, documentation and support.

This format was developed with assistance from Howard Rubin and Associates and Technology Investment Strategies Corp.

## VALUE

Based strictly on cost and functionality, evaluators said Memo was a good value. The limited sys-



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"We have many agencies in our local government that have their own E-mail systems but are still required to transmit mail and documents. Memo's gateway product has provided us with the access needed to the Lotus CC-Mail system, but its path is not entirely open. We cannot view the whole CC-Mail directory, only the portion assigned to the gateway."

tem overhead it requires makes it a great value, users said. But users are looking for Verimotion to move from a per-copy to a per-user licensing scheme.

**RETAILER:** "I have a copy of Memo at work as well as one at home, which means I'm paying for two licenses even though I can't possibly be in two places at once. I would consider it to be a much better value if we could pay by the user instead of by the copy."

## SUPPORT

Verimotion's support staff has grown and experienced some turnover, which has forced evaluators to occasionally work with inexperienced staff members. Users complained most about Memo's documentation.

**GOVERNMENT AGENCY:** "Until Verimotion brought its new support people up to speed, getting the help we needed was sometimes difficult. At one time, I could count how many good people they had on my fingers."

**MANUFACTURER:** "The documentation assumes you are more of an expert on the product than you actually are."

## COMMUNICATING WITH OTHER E-MAIL

Verimotion's gateway strategy supports a range of dedicated gateways that support X.400 and SNA Distribution Services.

**GOVERNMENT AGENCY:** "The documentation really led us astray when installing the MemoGateway Platform to link to a Lotus CC-Mail system. We kept reaching the maximum limit of log-ons available."

## EASE OF INSTALLATION

Installation on Windows was smooth. But OS/2 presented some problems.

**GOVERNMENT AGENCY:** "The installation was simple compared to IBM's OfficeVision, which we piloted a few years ago."

**RETAILER:** "Installing the Windows version is a 'drop in and go.' But installing it in an OS/2 environment is more difficult because it requires extra disks supplied by IBM to fix the installation."

## FORMS PROCESSING

Forms processing is done through a separate module called Memo/Forms. Memo/API is another module that updates databases with forms data. Users said minimal customization was needed to automate selected processes through forms processing.

**MANUFACTURER:** "We have been getting approvals on matters from our London headquarters the same day through the forms."

## ATTACHED FILES

Memo does not inherently possess the capability to attach or embed files, a common LAN-based E-mail feature.

**GOVERNMENT AGENCY:** "The files I would like to attach actually move as independent mail objects, a process that is not as easy or efficient as simply embedding a file."

## CUSTOMIZATION

The evaluators found Memo easy to customize.

**MANUFACTURER:** "We have as many as 1,500 dealers on our systems, which we configured differently so they do not see all the different directories our in-house staff sees."

Burdoo is Computerworld's senior researcher, CW Guide.

## MEMO

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Rating is based on user expectations on a 1-to-5 scale, where 1 is below expectations and 5 is above expectations. Categories are listed in order of importance to users.

3.7

4.0

4.3

3.5

3.3

4.0

3.5

4.0

3.7

3.0

3.8

3.3

## VERIMOTION RESPONSES

### ATTACHED FILES

Memo will support the attachment of files to another text message in the first half of next year. The product currently supports distribution of any type of file (text, binary, etc.) among PC users and terminal users on all supported platforms as well as through gateways to non-IBM systems.

### PRICING

Memo client software is now priced per user, with quantity discounts available. Verimotion has been closely watching the evolution of client/server pricing models and is prepared to adjust its pricing model when a standard is established in the marketplace, while we are considering per-user pricing for the host terminal users, most also appreciate the cost effectiveness of a single CPU price with unlimited users.



Memo's calendar is a true group calendar. Schedules are maintained on the host so all users, given authorization, can check the availability of co-workers by accessing their calendars.



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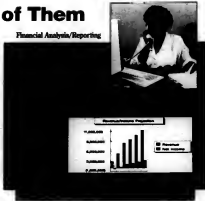
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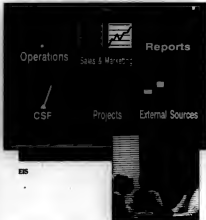
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## Getting a truly customer-driven system calls for nothing short of **s t a r t i n g** from

By Larry Runge

**I**N THE INFANCY OF DATA PROCESSING, data was so limited and so expensive that information technology professionals did not build systems—they built applications. Thus, systems development took place within a specific department rather than across separate departments. This made sense at the time because the departments themselves were organized around a process or function. The information technology psyche began at a department level, or lower, rather than at a business or enterprise level.

As a result, systems design became very department-dependent, often to the point at which expenditures and activities were optimized to the benefit of the department and the detriment of the enterprise. Our business leaders did not request systems based on customers, and academia did not teach about such systems, so we did not build them. This situation seems incongruous when you consider that the one thing all successful businesses have in common—regardless of industry—is a customer focus.

Even today, most new information systems do not model the businesses they serve. They are insular and focused on the needs of individual departments.



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## Starting from scratch

CONTINUED FROM PAGE 113

Today, with the benefit of 30 years of hindsight, we realize that companies can't afford to keep building department-based systems.

At my company, Wheels, Inc., an automotive fleet leasing and services company, we want each customer to feel as if he is our only customer. To accomplish that, employees have to have quick, automated access to everything we're doing for that customer, including who's been talking to the customer, when and why.

Why don't department-based systems fill the bill? First, they are based on departmental, rather than business, processes. This makes it difficult, if not impossible, to get an accurate picture of your customer's situation because you don't have security access to information you might need in another department's system. Even with clearance, it is unlikely you will know enough about another department's mainframe application's interface to get what you need. For instance, application development might be different. FI means Help in one system, Exit in another and Erase in a third.

In addition, most departmental systems are not designed to track customer calls within departments, let alone between them. More often than not, call tracking ends up on scraps of paper or in the heads of the various people who took the calls. Have you ever called a company with a problem, only to be passed from person to person, each requiring you to re-explain the reason for your call? Your customers won't be any happier than you are with this treatment.

Then there is the technical burden of systems being able to communicate effectively with one another, which has tremendous implications for customer service.

A customer-driven system should address these issues by incorporating the following key items:

- All customer-specific information that would normally be scattered throughout individual departmental systems.
- Current monthly levels of summaries for all activities associated with a given client and the ability to drill down into increasing levels of detail. At some point during the drill-down process, the user transparently exits the customer system and enters the underlying process-based system, the one that accumulates and manages the information presented in the summaries.
- Tracking and recording of all interactions, problems and issues between the company and the customer. This was my employee call process. A current answer if a customer calls to request the status of a previous call.
- Parameters and process directions provided by a customer, which will be used by process-driven applications to tailor processing to the customer's unique requirements.
- Critical event brokering, in which an event in one system is connected to another system to trigger some action. In our business, we purchase cars, send them to drivers and sell them

when they come off lease. If a driver has a car and orders a new one, the purchasing department handles the transaction. This information needs to be passed on, however, to the licensing and selling groups as well as to the vehicle remarketing department, so it knows a car is coming up for sale.

In the past, that process would have been manual because it was too complex to build an automated system. Today, these critical events can be brokered from one application to another using systems built with object-oriented design and a three-tier client/server architecture with separate layers for presentation, functionality and data.

Satisfying these requirements is the ultimate goal for a company dedicated to outstripping its competitors. Unfortunately, especially if you've just spent \$50 million re-engineering your entire system the traditional way, it is not cost-effective to retrofit a customer-driven design on a departmental system.

Attempting to do so is similar to building a house without a foundation only to discover later that the foundation was critical and then trying to correct your mistake without the proper tools. It doesn't work. While this approach may add a modicum of customer information, it still has all the shortcomings of a department-driven system. Painting stripes on a donkey doesn't make it a zebra.

A partially customer-driven system will have some amount of integration with other departmental systems but will lack full integration. More specifically, customer parameters exist as reference materials rather than parameters that actually impact and guide processing.

In our industry, for instance, a driver might order a car with a cassette deck or a CD player. In a partially customer-driven system, a person could call up the customer master file and find out that a cassette deck was allowed but a CD player was not. In a fully customer-driven system, the accessories options would be stored in a process parameter so the ordering system would check that automatically and return a message saying whether the option was available or not. The system provides the benefit of mass customization because no human intervention is required.

To build a fully customer-driven system, you have to scrap everything and start over. Of course, spending millions of dollars to re-engineer your system from the ground up is not a decision that many chief executive officers are willing to make. Still, many corporate information systems are in the same condition as the bridges of the national highway system: They were built decades ago and are now rusty, unreliable and in dire need of replacement.

If your system falls into this category, it offers a prime opportunity to change your IS architecture to one that is customer-driven.

So how do you go about building a customer-driven system? Use truism about a system is that there are as many different ways to accomplish the task as there are people assigned to work on it. I will tell you my way; to the right is the right way to use. My approach may not be exactly right for your environment, but I promise it works.

Many corporate systems are in the same condition as the bridges of the national highway system: They were built decades ago and are now rusty, unreliable and in dire need of replacement.

## It works for me!

### Step 1.

You have to convince the rest of the business of the benefits of a customer-driven system. This step may seem unnecessary or a no-brainer, but don't heed this advice and you may regret it. A customer-driven system will impact the way departments do business. It's important they understand this, and it's important to have their buy-in. Without such support, the system will not work.

### Step 2.

Assemble a team that will guarantee success. The best bet is to select people from a variety of technical and business backgrounds. They need to have strong client/server technical skills because it is impossible—or at the least, costly—to build this type of system using a mainframe and dumb terminals. Those skills should include, among other things, knowledge of graphical user interface (GUI) tools, object-oriented design, SQL, the Open Software Foundation's Distributed Computing Environment and LAN networking. The team also has to be on board with what you're trying to accomplish and completely understand your goals and vision, or it will waste more time and money than you could imagine.

### Step 3.

Hire contractors with the esoteric skills you need. While it will be difficult to find people with experience in true customer-driven systems, hire a consultant fresh off a large project that involved a migration to client/server technology. If you can find someone who worked for your competition, that's even better. This has to be a hands-on person who is willing to roll up his sleeves and write some GUI code using products such as Microsoft Corp.'s Visual Basic or Visual C++. Stay away from architecture prima donnas.

### Step 4.

Expect opposition from the old guard. Thirty years after the electric motor was invented there were still engineers designing processes powered by steam engines. It is against human nature to embrace radical change, yet that is what you're proposing. A 13th-century medical text advised: "A good leech (i.e., physician) does not spare the burning or the cutting because of the weeping of the patient." This applies to information technology organizations, too. If you need to make organizational changes to get things done, do them and get on with it.

### Step 5.

Use an iterative development approach based on heavy end-user involvement and extensive prototyping. We call ours The Chained Blue Lightning Methodology—a name I stole from the Clint Eastwood movie, *The Outlaw Josey Wales*. It has three phases—analyze, prototype and evaluate—that constantly repeat. Simpler approaches are being used by many different companies with significant benefits.

### Step 6.

Pick the low-hanging fruit first. Start with applications you can deliver quickly and save the more complex ones for when you have more experience under your belt. In regard to the cus-



## In Depth: Customer-driven Systems

tomer system itself, first provide basic customer information management, then process commercial and issue tracking, then process and pricing parameters and finally, critical event messaging.

### Step 7.

Use the Mission Management Method—or "show-me" management. With an iterative development approach, you should be able to see progress. Spend a few minutes each day looking over various developers' shoulders. And whatever else you do, use your intuition regarding strategic technology decisions, and don't be swayed by technical rhetoric or engineering puns. Your job, like mine, is to make your company more competitive and profitable, and those are the only basis points for technology decisions.



### Step 8.

Use a building block approach to construct your applications. This means modular and possibly object-oriented. This allows you to snap in new applications as needed and shift current ones around almost effortlessly. I prefer a hybrid system—a combination of objects to gain reusability and nonobjects to take advantage of the wonderful GUI productivity tools available today. The object tools are used to design the functionality layer, and the GUI tools are used to design the presentation layer.

These eight steps will get you on your way. But there are a few caveats to keep in mind.

First, technology will not be the primary headache. What will cause the most problems is data. These problems will take many forms, including old data that needs to be purged, data that needs to be cleaned up, data that needs managing because the formats are different on the old system and data bridging and synchronization problems between the old and new systems.

Two things will minimize these problems: education and starting early. You need to make it clear to your user community that data will be a problem in setting up the system. They may have to enter data that doesn't exist today, clean up old data or put it into standard formats. If you don't start the data cleanup early, you could have an unexpected stall in implementation as you discover chunks of data that don't fit the parameters.

Also, a customer-driven system will collect many different types of information not present on the old system, so it may take months to accumulate enough to be useful to those charged with entering it. Make sure users understand you are making an investment for the future.

Finally, as with the invention of the

transistor, it may take years for all the benefits of a customer-driven system to be fully recognized. This doesn't mean you won't see immediate gains, such as real-time problem resolution and a reduction in the number of calls. But the true benefit will be in having a system that enables your business to put the customer at the center of everything you do. Once customers are comfortable with the knowledge that you will resolve their problems quickly, they will start looking

at you as an extension of their own company as opposed to an external supplier.

When employees begin to think of things from a customer perspective, it will impact the very culture of your firm.

So be warned, not only have we in IS been doing our job wrong for the last decade or so, we now need to fundamentally change the way we've been building and organizing systems departments.

It's time to give up our passive roles,

take a proactive stance and force changes in the actual underlying business processes. We must take a revolutionary, not evolutionary, approach to systems development and build around the customer—which is, after all, the very thing on which businesses are based. ■

Runge is vice president and chief information officer at Wheels, Inc., a national automotive fleet leasing and services company in Des Plaines, IL.

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# Coping with JAD

When your company lives and dies by joint application development, learning to facilitate the process makes all the difference.

By David A. Kelly

Life as you know it doesn't have to stop when you're assigned to a joint application development (JAD) project.

When done right, JAD can shorten development cycles and deliver high-quality software. When done wrong, poorly designed products and alienated managers and users are left in its wake. "The JAD disasters I've seen have happened because people weren't prepared," says Lisa Ann Barnes, product development manager at Corporate Computing, Inc. in Bannockburn, Ill.

In most JAD projects, the facilitator's job is to help users and decision-makers reach a consensus on design issues through a series of structured sessions. While it's not easy to keep projects on track, industry experts suggest starting with the basics: set detailed agendas and objectives and identify and collect the right players for each session. Then, once you've covered the basics, use the following tips to keep problems at bay:

Many times people don't cover the agenda for a meeting because they don't know they

were supposed to," Barnes says. Avoid this problem by holding a one-hour training meeting before the first JAD session. Explain the role of a facilitator, the importance of setting and achieving objectives and the need to cover the agenda at each meeting.

Use interviews to cut down on JAD sessions and extra meetings. James Newkirk, vice president of information resource management at MTW Corp. in Kansas City, Mo., suggests two-person teams interview senior-level people on large JAD projects. Hand out advance copies of questions, have a one-hour interview and then later allow people to review a transcript. The results can become the basis of JAD sessions. "You don't need to interview everyone," Newkirk says, "just people who can make decisions and know what is going on."

When the group starts to move off course during a JAD session, write the offending issue down on a flip chart and move on. By parking the problem, people know their concern was

heard, that they won't be ignored, and the item can be readressed at a more appropriate time. "We keep several flip charts available for parking issues," Barnes says.

Dissipate frustration by providing some stress reducers such as Silly Putty or other small toys. "We've found that Knead balls work well to relieve tension," says Peggy Trost, principal consultant at James Martin Government Consulting, Inc. in Reston, Va. Barnes adds: "Instead of arguing or fidgeting, people can burn off negative energy by playing with a Slinky."

Document as much of the project as you can. Record the minutes of JAD sessions, but make sure everyone on the project keeps adequate records as well. Document decisions from telephone conversations, meetings and user sessions and forward them to all parties. "People often come away from discussions with different ideas of what was decided," says Murren Hill, director of software development for application products at Andersen Consulting in Chicago.

It's important to set time frames and deadlines slowly when working on a JAD project because the process requires so much input from users. Start with a comfortable end point and work backward. Take into account seasonal factors, vacations and any industry or business-specific phases. "It may sound minor, but you're not going to get an adequate user review if it's scheduled during year-end close," Hill says. ■

Kelly is a free-lance writer in Newton, Mass.

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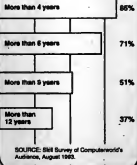
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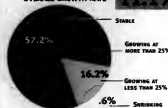
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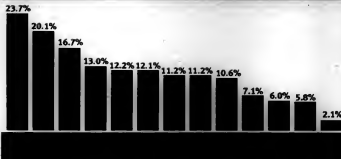
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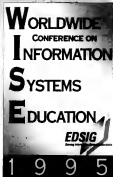
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# Marketplace

■ IS MANAGERS REPORT THAT E-MAIL FALLS SHORT IN MANAGEMENT FEATURES AND INTEROPERABILITY. SEE CW GUIDE, PAGE 97.

## DIARY OF AN E-MAIL BUYER

After two years of evaluating and planning, the Arizona Public Service Co. realized the electronic-mail product it needed did not exist. None of the distributed E-mail systems that fit the utility's requirements were truly client/server, so it had no choice but to go on a promise.

BY CHERYL GERBER



When the Arizona Public Service Co. began evaluating electronic-mail products, its users had high expectations. The information systems department had added so many applications and customizations to its IBM mainframe-based Professional Office System (Profs) that all 6,000 users wanted it.

"By 1991, this company had begun to live and die by its Profs calendaring system," says Margaret Melisko, Arizona Public Service supervisor of infrastructure services. "They didn't know where they were supposed to be if they didn't have their calendar."

Indeed, the electric utility came to rely on E-mail not just for the technology but as a vital business tool. But there was one big problem with all this E-mail popularity.

**The dependence on IBM's Profs E-mail directly conflicted with the company's long-term strategy to move off mainframes and onto client/server by the year 2000.**

The utility needed to find a client/server E-mail system that mirrored the func-

tionality of its mainframe-based Profs E-mail running on an SNA network. Its 6,000 users needed the continuous capability to send and receive E-mail from one corner of Arizona to another. Yet the mandate wasn't as simple as that. The utility had inextricably interwoven three E-mail systems with customized directory synchronization. The only solution would be to tie in a fourth system.

"We did not want just a local E-mail system," Melisko says. The utility wanted a distributed system to replace Profs and tie in with Sun Microsystems, Inc.'s Unix E-mail, Banyan Systems, Inc.'s E-mail and the internally customized directory synchronization, she explains.

After establishing functionality needs, the Phoenix-based utility drew up its technology requirements: Intel Corp. hardware, TCP/IP as the underlying network and a Windows desktop.

It was starting to look as though Microsoft Corp.'s Mail or Lotus Development Corp.'s CC-Mail were the top candidates. However, while the utility was evaluating these products, it realized there was a technology requirement not on the

three-pronged list, so it added a fourth: an E-mail solution not based on DOS.

Because they are both DOS-based, Mail and CC-Mail are shared-file systems. They are not client/server architecture, nor are they SQL databases—the utility's chosen long-term strategic technologies. As a result, administration is user- and labor-intensive. Microsoft Mail post offices, for example, support only 250 users per post office, so administrators must change all 25 post offices every time they add a new one.

During its E-mail evaluation, the utility was also busy tweaking a Sybase, Inc. SQL database in a client/server environment. "While we were working on Sybase, I thought: It makes sense to have a database server that supports multiple client front ends. If I have one big server handling E-mail, I have only one backup to do, only one directory to add users to," Melisko says. The utility cast the idea and Microsoft bit big.

**"Microsoft told us about its Exchange Server and gave us a review of how they were designing it. It was what we wanted," she says.**

But Exchange Server wasn't even in beta release in 1993, a cause for concern. "I would never issue a recommendation based on who offers the most promise for the next-generation product," says Dave Whitten, a vice president at Gartner Group, Inc. in Stamford, Conn. "You can't evaluate a product until it's shipping. Exchange is not yet in production," he points out.

Nevertheless, the utility decided to risk implementing Mail on the promise of reeling in Exchange Server soon—soon being the operative word.

**By the time Exchange Server is in production, it may have been delayed by one year. But the utility decided to hang in there.**

"The shared-file system is ugly. We knew it. But you can put up with ugly now if you know you're going to get pretty down the road," Melisko explains.

The promise of Exchange Server filled all four of the utility's technology requirements. It also met the long-term goal—client/server computing. Because it runs on Microsoft's Windows NT, Exchange Server will provide 32-bit preemptive multitasking and multithreading, giving administrators the ability to route messages while doing administration and monitoring.

After two years of evaluating and planning, the utility realized what it needed did not exist in the market. None of the distributed E-mail systems that fit the utility's requirements in 1992 were truly client/server, so it had no choice but to go on a promise.


For the time being, Mail gives users the wide-area networked E-mail, the internal bulletin board and calendaring systems they had grown used to in Profs. But it's no joyride for E-mail administrators, who are bopping there will be no more delays of Exchange Server. The IS department at Arizona Public Service is anxiously awaiting the product's release to ease the hardship of administering a DOS-based Mail system with 6,000 users.

To help with price negotiations, the utility positioned itself for an upgrade path by installing Mail and beta-testing Exchange Server. "It's a price reduction any time you can do upgrade vs. buying new licenses," Melisko says.

Yet without a finished Exchange Server in place, it's still a gamble and a puzzle. "You get a piece at a time. But the more pieces you have, the better the puzzle looks," Melisko says.

Gerber is a free-lance writer in San Francisco.

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## PowerPC deal nears

CONTINUED FROM PAGE 1

erful market presence of Microsoft Corp. and Intel Corp. "As long as IBM and Apple are engaged in this game of trying to get people to choose up sides to write for their machines, only Microsoft and Intel stand to benefit," said Randall Flint, president of Sun Syst. Systems, Inc., an OS/2 developer in Seal Beach, Calif.

The two companies have already agreed to support a single hardware standard that, according to sources, will cover the IBM/Motorola, Inc. PowerPC Reference Platform (Prep) with Apple's architecture into a new platform referred to by several sources as AIM, an acronym formed from the three company names. By year's end, the partners will have identified the major technical differences between the two hardware platforms, according to sources briefed by the companies.

However, it will take them the better part of next year to address those differences, which means they are not likely to have compatible products to market before mid-1996, the sources said.

"We believe there should be true value in [a unified Prep], but we'll have to wait and see," said J. R. Garcia, core technologist at Eastman Kodak Co. in Rochester, N.Y., which has Intel and Apple desktops. Garcia said Kodak has one IBM PowerPC box running AIX 4.1 for testing purposes.

Besides zeroing in on a hardware standard, Apple, IBM and Motorola appear close to agreeing on creating a separate research and development partnership to port the Macintosh operating system to the new hardware standard.

Sources close to the companies said the major stumbling block to the agreement is financing. Apple expects the cost to be between \$40 million and \$60 million and refuses to pay for it. IBM is, being pressed to provide all or most of the financing for the work, the sources said.

### Price break

If IBM finances the port, it will receive a break on the cost of licensing the Macintosh operating system, internal IBM sources said. Michael Kwalinets, an analyst at Palm Webber, Inc. in New York, said Apple will license the Macintosh operating system to IBM and restrict the company to selling into the corporate market, where Apple has made little headway.

However, other observers said IBM wants an unrestricted license.

### Feature fiction

BEHIND THEIR RESPECTIVE COMPANY LOGOS, APPLE AND IBM SHUT TO MICROSCOPIC DIFFERENCES BETWEEN THEIR ARCHITECTURES FOR A UNIFIED POWERPC PLATFORM TO EMERGE. THESE INCLUDE THE FOLLOWING:

### Bus architecture: PCI vs. NuBus\*

#### Interrupt handling

Keyboard ▶ Different number of keys  
▶ ADD\*\* vs. serial bus (IBM)

#### Sound handling

#### Video handling

\*Apple is moving to PCI \*\*Apple Desktop Bus

Source: Senior Group, Inc., Stamford, Conn.

on top of IBM's microkernel and on IBM-built hardware. Officials at IBM and Apple declined to comment on the story.

### On the lookout

Users, meanwhile, say they will switch any developments that could lead to a second source of hardware for the Macintosh operating system because competitors to Apple should stimulate the Macintosh software market and prompt lower hardware and software prices.

Bob Anderson, senior analyst at Milwaukee-based analyst mobile parts vendor A. Q. Smith, Inc., noted that close developments "have a fairly high degree of interest to on simply from the standpoint that we don't like to be beholden to any one vendor."

Users see benefits to an Apple palling. See page 39.

## Sun model

CONTINUED FROM PAGE 1

selling firm has used similar technology in custom applications at several of its client sites.

While Sun executives said they have no immediate plans to release the technology in product form, analysts and sources close to the firm said the prototype clearly signals Sun's intent to produce such products in the future.

### Taking a peek

The manufacturing pilot was shown in a short video clip at the conclusion of a speech by William Raduchel, Sun's chief information officer, at Advanced Manufacturing Research's annual conference last week in Boston.

The data model permits communication among systems — in this case passing objects among electronic data interchange servers, relational databases from Oracle Corp. and Sybase, Inc. and a mainframe.

In the pilot, some 12 computing systems are linked to handle enterprise-wide billing, order entry, job scheduling and other key tasks.

Sun often demonstrates its software technology to users and hopes to recoup investments in internally developed software through later sales. But Raduchel made it clear that to the publish-and-subscribe technology, which cost around \$1 million to develop, is "a ways away" from being a commercial product.

Several departments within Sun

are looking at the publish-and-subscribe technology, which could be used to tie together a few select applications within a few months.

"But we won't be running mission-critical applications for a year," Raduchel said.

Users and analysts were unfamiliar with the Sun effort, but liked what they heard. "Anything that would better utilize the resources of the network would be attractive," said Roger Holton, a business technology consultant at Ciba-Geigy Corp.'s chemical division in Greensboro, N.C., when told of Sun's publish-and-subscribe technology. He said he would be especially interested if a machine could be added to the network "and automatically have its resources known and available to the rest of the network."

Jeff Marshall, senior managing director of communication technology at Bear, Stearns & Co. in New York, said the Sun approach is very interesting. "I've been discussing relational networking for the past year," he said. Alex Newman, executive director of the Sun User Group, Inc. in Brookline, Mass., said, "this kind of capability is clearly the right direction to be heading with open systems." Because one of the major concerns with open systems is security, he said, a publish-and-subscribe model could increase the level of protection for systems. The only connection between systems would be the object, which is presumably easier to make secure, Newman explained.

OMG chooses TCP/IP standard. See page 6.

## Baby Bell pact

CONTINUED FROM PAGE 1

munications at CBS, Inc. in New York.

In addition, operating cellular devices seamlessly — no matter what region users call from — remains a major headache in today's circuit-switched voice networks. It is also a stumbling block for rolling out Cellular Digital Packet Data networks, North American Cellular Network has seamless roaming.

The new partnership will operate in 15 of the nation's Top 20 cellular markets, including the key New York and Los Angeles sectors. It will have more than 4 million cellular subscribers, compared with McCaw Cellular Communications, Inc.'s 3.8 million.

A McCaw spokesman said the new partnership should accelerate rate drops, which will increase usage.

Still, to create a truly national wireless network, the new wireless alliance will need to use broadband personal communications services (PCS) licenses, which came up for sale last week from the Federal Communications Commission Dec. 5. The FCC deadline for filing to participate in these auctions is Friday.

### Strength in numbers

In a conference call, officials from the quartet said they had joined forces in part to gain the financial muscle to win the licenses they need to fill out their network.

However, Mark Lowenstein, an analyst at The Yankee Group in Boston, cautioned that "there will be no immediate benefits to customers. Two benefits will be in PCS and also later on with the potential cellular savings."

Partnership officials do not expect to have PCS services operational until late 1996 at the

earliest.

"Massive nationwide infrastructure deployment is hideously expensive," said William Frezza, president of Wireless Computing Associates, a consultancy in Torrey, Pa.

Separately, analysts said they expect to see at least one other major wireless partnership form this week — in time to meet the FCC's Friday filing deadline.

### Maybe MCI

In addition, MCI Communications Corp. continues to be mentioned as a possible fifth partner in this nationwide network, mostly to provide. It with a national brand name. Analysts said they were not sure the new alliance really needs MCI brand name, though.

### Wireless linkup

The partnership between Bell Atlantic/Nynex and AirTouch/US West will put them in 15 of the 20 largest U.S. cellular markets

	BELL ATLANTIC/NYNEX PROFILE	AIRTOUCH/US WEST PROFILE
POPULATION	55 million	53 million
CUSTOMERS	2.2 million	1.9 million
NUMBER OF MARKETS	48 MSA*/36 RSA**	71 MSA*/36 RSA**

\*Metropolitan statistical area \*\*Bureau statistical area

Large cellular players still unattached include GTE Corp., BellSouth Cellular Communications, Inc. and Ameritech Cellular Services.

Paul Feldman, a senior associate at Fletcher Heald & Hildreth, a telecommunications law firm in Roslyn, Va., said the partnership appears to have a good chance of getting through the U.S. Department of Justice.

"We need to know more of the details, but [the AT&T/McCaw deal] passed muster with Justice," Feldman said. However, he noted a key difference in the two unions. AT&T is in a different business than McCaw, and the four partners are in the same business.

# Wysiwyg



## A Mouse in the Computer

Just a suggestion for people who do not put their covers back when they remove a board from their expansion slots. I left my covers off for about six months, and when I opened the case to put in a new board, I found that a mouse had left some gentle reminders. It had not chewed any wires or done damage to any component except for my override socket, which I am sure is unusable because it is caked in mouse urine. Perhaps this is a statement from the rodent population about Intel or even about the need for an override socket when we just keep buying new machines anyway. I hope I will never have to tell my boss that I cannot do something because a mouse ate my computer.

Peter Sigrist  
Ar-Bi Garage Doors, Inc.  
Bedford Park, Ill.

## System Life Cycle Phases

- 1 Wild enthusiasm
- 2 Disillusionment
- 3 Total confusion
- 4 Search for the guilty
- 5 Punishment of the innocent
- 6 Promotion of nonparticipants



Source: High Performance Tech. Inc. Ridge Pointe, Parkersburg, W. Va.

WYSIWYG COMPILED BY TIM OUELLETTE, ILLUSTRATED BY DAVID MARSHALL

## Call Your Lawyer!

Transmedia Productions, Inc. is in Toledo, Ohio, has created a computer courtroom simulation for lawyers to hone their skills. Called *Objection*, the software is actually certified for Continuing Legal Education credits in 12 states. The user, acting as a defense attorney, decides whether to object to questions asked during the course of a case, and the judge either sustains or overrules the objection. The product, which sells for \$139, identifies problem areas for the user to address and scores on quickness and correctness.

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West Coast bureau, Burlingame, Calif.

Northwest bureau, Bellevue, Wash.

Phone:

(508) 839-0700

(508) 820-8555

(202) 587-0090

(202) 347-0134

(708) 827-4433

(415) 347-0555

(206) 347-7770

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## Inside Lines

### Never kid a Kidder

Executives at PulseWebster and Kidder, Peabody & Co. remained silent last week on how they intend to integrate the two brother-sister IT organizations. PulseWebster just announced plans to acquire Kidder from General Electric for \$670 million in stock, with the merger expected to be completed in January. In the meantime, sources at Kidder say headhunters are already raiding the firm's IS staff, but some of Kidder's IS staffers are said to be holding out for a holiday bonus package expected to comprise 70% of last year's cache.

### Heading at Warp speed to Planet Buggy

Scattered reports persist about various bugs still living in the production version of IBM's OS/2 Warp. Chief among the problems appears to be the inability to install the operating system properly on clones as well as certain IBM systems. Even Lee Reiswig, president of IBM's Personal Software Products division, had difficulty installing the golden code on his home system, requiring assistance from some IBM technical types, sources said. Still, the product is expected on retailers' shelves by Nov. 1.

### Goin' somewhere with PC Anywhere?

Symantec's PC Anywhere, under fire in the remote access market, will get a significant facelift next week with a version that is 25% to 30% faster and no longer modifies the .INI file when installed. It also boasts both synchronization features and the ability to clone directories, a Symantec product manager said. Also on tap will be TCP/IP support and drive-mapping, a feature that lets users call information from a file on a remote system without having to transfer it to the host.

### Tale of the teletape tape

IBM is beta-testing a promised line of 100-byte tape drives and cartridges, but continued cost cuts and a mid-October management shakeup at its storage unit have thrown plans for the technology into disarray. A lower-capacity version for AS/400 and Unix systems is now up in the air, and IBM is dithering about the amount of money needed to develop capabilities for splitting the cartridge into multiple logical volumes—a critical feature for commercial environments. Meanwhile, Redwood Technology plans to start beta-testing its own high-capacity Redwood tape drives next month.

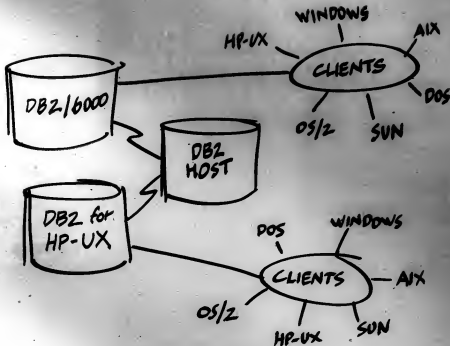
### More layoffs looming for IBM labs?

Rumors are running rampant among the troops in IBM's Santa Theresa, Calif., labs about some "lumpy layoffs" in the next month or two. The labs are where IBM in the past has done a lot of its work on products such as DB2, DAS and various technologies associated with AIX/OS. An IBM spokesman had no comment.

### Don't trip over those Milestones

Microsoft will begin shipping the second official beta version of Windows 95 by early next month, officials said last week. The beta (also known as M7, short for Milestone 7) will not include the VoiceView technology that lets users send data to others during voice calls. VoiceView will be added to M7 prior to the user "Preview" program, which follows the beta cycle but comes before the final commercial release. Everybody follow that? Where?

*The Internet Multiteaching Service is seeking companies willing to adopt their favorite local charity for a Christmas Cyber-space Campaign, which will include an interactive Santa Claus for the kids, at the address "north.pole.org." An on-line multimedia exhibit will be created on each charity, and sponsoring computer industry vendors will be set up for 10 cents whenever their exhibits are browsed by Internet users. A dime at a time is all they ask, and that's all you have to drop to donate time to Computerworld. You can call our 24-hour volunteer tip line at (800) 620-4645 or our toll-free number at (800) 343-6474. Nexus editor Maryfran Johnson can be reached by phone at (508) 820-8170, via the Internet at mjohnson@cw.com or through MCI Mail at 500-5017.*



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Dell's Latitude series of laptops is breaking battery life records. Power management software helps, too.

can't prove it, but we know it. All we can say is that we used the notebook for four solid hours and still had more than 25% of the charge left, according to Dell's Windows utility that measures the battery charge. We haven't yet had enough time to drain the battery in one sitting. That says much for the efficiency of lithium-ion technology.

Laptop Buyers Guide  
Vol. 12, No. 5, p. 26, p. 86

the road. The latest in the Latitude line—the XP—is more like a BMW. It's a hot model just off the showroom floor that's bound to draw some oohs and ahs for its style and performance.

With the most control of its  
Windows Magazine  
10-94, p. 124

entire... weights, and for these guys, compromise isn't an option.

Enter Dell's Latitude XP, the fastest, longest-lasting 486 notebook our lab has ever seen. Powered by Intel's DX4/100 processor and equipped with state-of-the-art lithium-ion batteries and up to 36MB of RAM and 500MB of disk space, it rivals most desktop machines.

Extra Life All that power would be beside the point if the system could run for only a couple of hours. You're guaranteed not to have that problem with this machine. While

PC Computing  
10-94, p. 57

Well, there's no such thing as a free notebook, I have found the Holy Grail. It's a full-featured, high-powered, name-brand notebook PC that really gets six hours of battery life and maybe more, depending on your usage pattern. It isn't just the most powerful notebook on the market.

OF THE TWO, the Dell Latitude XP stands out, in any view, and not only because of its awesome battery life, made possible by a new lithium-ion battery technology and especially clever hardware and software that micromanages the machine's use of power.

Walter Muehlberg  
Wall Street Journal, 9-8-94

## Longest Battery Life Ever.

Latitude XP notebooks are a Windows 95 machine. A professional 386-486 model with a 9.5-inch color-active display and power management software that can run for an astonishing 7 hours, according to estimates made by the PC World magazine.

PC World, 10-94, p. 64



When we introduced our Latitude™ XP notebook, we knew its eight-hour battery life<sup>1</sup> would evoke quite a few comments from the industry experts. However, recently they have been having field days at their keyboards.

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<sup>1</sup>(Actual battery life will vary depending on nature and frequency of use and configuration.)

workhorse Lithium Ion battery. Or perhaps it's due to the miserly power-conservation software,

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